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Transportation

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PREFACE

Transportation is vital to modern business and among the agencies which render this service the railroads stand preeminent. In a volume devoted to the description of this service the railroads have the place of honor but other forms of transportation which give the railroads a local or limited competition receive adequate attention. The point of view from which the entire book has been written is that of the business man who uses the various transportation agencies. Because of this point of view the reader will find the emphasis of the volume laid upon those things which directly affect the shipper, rates, classifications, tariffs, fast and slow freights, special services and charges.

This deliberate emphasis of the business man's interest in railway and other transportation service renders it necessary to shorten the discussion of many points commonly found in books on the railroads. The plan of the work naturally excludes any consideration of the internal organization and management of railways. It presents the fruitful topic of the relation of the government to the railroads, from the point of view of the business man as a consumer of railway service, emphasizing its effects upon rates and on the development of railway facilities adequate for modern business needs.

The plan of the volume was carefully worked out by the Editorial Department of the Institute in consultation with railway experts. In its execution the Institute enjoyed the supervision, cooperation and assistance of Dr. Grover G. Huebner, Professor of Transportation at the University of Pennsylvania. Dr. Huebner has also given the manuscript prepared in the Editorial Department a painstaking and thorogoing scrutiny. Many changes were made in the first draft of the work to meet Dr. Huebner's criticism and suggestions, and in the form in which the Text is now presented to the reader it has his whole-hearted approval.

In accordance with the plans outlined and with the assistance above noted the immediate work of preparing the Text was entrusted to Dr. Ralph D. Fleming, Associate Editor of the Alexander Hamilton Institute. Dr. Fleming and Dr. Huebner were students of transportation together at the University of Pennsylvania, and both of them have specialized in this subject as their life work. In preparing the manuscript Dr. Fleming secured the permission of Professor T. W. Van Metre to weave into the material some illustrations taken from the latter's lectures on Railways at Columbia University. To him and to all who have aided us in giving to the Text its present form and substance grateful acknowledgments are made.

JOSEPH FRENCH JOHNSON

TABLE OF CONTENTS

CHAPTER I

THE BUSINESS MAN AND THE RAILROADS

SECTION PAGE
1. Transportation and National Development . . 1
2. Influence of Transportation on Business . . . 2
3. Transportation and Profits 2
4. Transportation and Production 4
5. Transportation and Marketing 5
6. Exporter and Importer 6
7. Pressure for Low Rates 6
8. Competition among Goods 8
9. Geographical Competition 9
10. Competition among Shippers 10
11. Terminal Advantages 11
12. Passenger Traffic 11
13. Time Element in Transportation 12
14. Government Regulation of Rates 12
15. Interstate Commerce Commission 14
16. State Commissions 14
17. Land Highways 15
18. Coastwise and Inland Water Traffic 16
19. Railway Expansion and Operation 16
20. Using the Railways 18

CHAPTER II

THE TRANSPORTATION AGENCIES

1. The Railroads 20
2. Physical Aspects of the Railroads 22
3. Commodities Making up Freight Traffic . . 23

SECTION PAGE
4. Recent Railway Development 24
5. Railway Ownership 27
6. Commission's Plan of Grouping Railroads . . 29
7. Water Transportation in Domestic Trade . . 32
8. Coastwise and Lake Traffic 33
9. River and Canal Traffic 34
10. Highways 36
11. Highway Traffic 38
12. Electric Railroads 39

CHAPTER III

BASIC ELEMENTS IN RAILROAD RATES

1. Railroading Differs from Other Businesses . . 42
2. Cost of Service 44
3. Fixed Elements in Railroad Costs 47
4. The Influence of Cost of Service 50
5. Value of the Service 52
6. "What the Traffic will Bear" Applied to Business 55
7. Adverse Criticism on "What Traffic will Bear" Theory 56
8. Value of the Commodity 56
9. Physical Valuation of Railroads 58
10. Social Considerations in Rate Making . . . 60

CHAPTER IV

COMPETITION AND ITS INFLUENCE UPON RATES

1. Phases of Competition 63
2. Effects of Unrestricted Competition 63
3. Aspects of Railway Competition 65
4. Water Competition 68
5. Railway Pools 70
6. Early Pooling Agreements 71
7. Legislation Hostile to Combinations 73
8. Present Day Traffic Associations 74

SECTION PAGE
9. Results of Consolidation 75
10. The Law and Competition 77
11. Pooling Made Legal 79
12. The Law on Consolidation 80
13. Competition at Terminals Prevented 81

CHAPTER V

CLASSIFICATIONS AND CLASS RATES

1. Need of Classification 83
2. Development of Classification 85
3. Consolidated Classification 87
4. Differences in Classifications 90
5. How Classifications are Made 92
6. Principles of Classification 92
7. Carload and Less-than-Carload Ratings . . . 94
8. Mixing Privileges 98
9. Exceptions to the Classification 101
10. State Classifications 102

CHAPTER VI

RATES AND TARIFFS

1. Kinds of Rates 104
2. Commodity Rates 106
3. Commodity Rates vs. Class Rates 108
4. Rules for Tariff Making 108
5. The Local Tariff 109
6. Local Rates Combined with Thru Rates . . . 114
7. Classifications and Local Tariffs 115
8. Joint Tariffs 116
9. Revoking Concurrence 117
10. Joint Rates as Legal Rates 118
11. Illustration of a Joint Tariff 118
12. Agency Tariffs 120
13. Joint Agency Publications 122

SECTION PAGE
14. Reading an Agency Tariff 123
15. Fast Freight Line Billing or Instruction Books . 126
16. Aids in Finding Rates 128

CHAPTER VII

QUICK MOVING FREIGHT—EXPRESS, AND PARCEL POST

1. How Freight is Moved 130
2. Fast Freight 130
3. Private Cars 134
4. The Small Shipper 136
5. The Express Service and the Small Shipper . . 137
6. Origin and Extent of Express Service 138
7. Rates 139
8. Origin of Parcel Post 142
9. Development of Parcel Post System 143
10. Parcel Post and Express Compared 144
11. Railroad Remuneration for Mail and Express Business 145
12. Future of These Services 146

CHAPTER VIII

SPECIAL SERVICES AND CHARGES

1. Modification of Rates 149
2. Routing 149
3. Right of Carriers to Avoid Short Hauling . . . 151
4. Routing over the Cheapest Route 152
5. Routing According to Instructions 153
6. Absence of Routing Instructions 155
7. Reconsignment 155
8. Reconsignment in Practice 157
9. Milling-in-Transit, etc. 158

CHAPTER IX

SPECIAL SERVICES AND CHARGES (*Continued*)

SECTION PAGE
1. Shipments and Deliveries 161
2. Delivery 162
3. Lighterage 163
4. Switching Charges 164
5. Store-Door Delivery 166
6. Demurrage 167
7. Off-Line Freight Offices 172
8. Claims 173
9. Classes of Claims 174
10. Causes for Losses 175
11. Handling Claims 176

CHAPTER X

PASSENGER SERVICE

1. Passenger Service Compared with Freight Service 178
2. Relative Volume of Business 180
3. Fluctuations in Business 182
4. Passenger and Freight Receipts 183
5. Passenger Roads 185
6. Classes of Service 186
7. Fares and Tariffs 188
8. Standard Railway Fares 190
9. Actual Railway Fares 192
10. Baggage Service 194
11. Pullman Service 195

CHAPTER XI

GOVERNMENT REGULATION OF RATES

1. Scope of Legislation 199
2. Jurisdiction of the Interstate Commerce Commission 200

SECTION PAGE
3. Commission's Authority over Rates 201
4. How the Commission Functions 203
5. Preventing Grievances 207
6. Procedure—Informal Complaints 207
7. Procedure—Formal Complaints 209
8. How Commission's Decisions are Made Binding . 211
9. Publicity of Rates 211
10. Statistics and Accounts 213
11. Physical Valuations 214
12. Water Transportation 216

CHAPTER XII

LOCAL RAIL TRANSPORTATION

1. Short-Haul Competition 218
2. City and Suburban Lines 219
3. Interurban Lines 220
4. Extent and Nature of Competition 222
5. Freight Service of Electric Roads 222
6. Effect on the Railroads 223

CHAPTER XIII

HIGHWAY TRAFFIC

1. Place of the Highways 226
2. Road Bed and Motor Truck Equipment . . . 227
3. Advantages of the Motor Truck 228
4. Motor Transportation 231
5. Private Trucking 231
6. Special Phases of Private Trucking 233
7. Motor Truck Express 234
8. Common Carriers 235
9. Competition with Railroads 236
10. Checking Railway Development 237
11. Motor Trucks as Railway Feeders 238

SECTION PAGE
12. Motor Truck in Railway Service 239
13. Motor Truck Prospects 239

CHAPTER XIV

WATER TRANSPORTATION

1. Advantages of Water Transportation . . . 241
2. Disadvantages of Water Transportation . . . 241
3. Waterways both Competitors and Aids to Rail Traffic 242
4. Classes of Water Transportation 244
5. Coastwise Traffic 244
6. Railroads and Coastwise Lines 245
7. Traffic on the Great Lakes 246
8. Traffic on Rivers 248
9. Types of Vessels Used 252
10. Statistics of Tonnage on the Mississippi River . 253
11. Traffic on Canals 254
12. Traffic on the New York Barge Canals . . . 256
13. St. Lawrence Canal Project 259
14. Future of Water Transportation 261

CHAPTER XV

RAILWAY DEVELOPMENT AND OPERATION

1. Obstacles to Railway Development 264
2. Regulation of Labor 265
3. Railway Labor Board 266
4. Operations of the Board 268
5. Car Service 269
6. Construction and Abandonment of Line . . . 272
7. Securities 272
8. Interlocking Directorates 273
9. Payment of Freight Charges 274
10. Traffic and Revenue 274

SECTION PAGE
11. Consolidation 276
12. Temporary Financial Aid 276
13. Miscellaneous Provisions 277
14. Railroad Prospects 278

CHAPTER XVI

HOW FREIGHT IS SHIPPED

1. Shipping Papers 281
2. Bill of Lading 282
3. Straight Bill of Lading 282
4. Order Bill of Lading 284
5. Other Bills of Lading 284
6. Contract of Carriage 285
7. Preparing the Bill of Lading 285
8. Delivery of Goods 286
9. Way-Bill 287
10. Tracers 287
11. Claims 288
12. Importance of Details 288

CHAPTER XVII

THE TRAFFIC EXPERT

1. Traffic Man's Field of Work 290
2. Traffic Fundamentals 291
3. Routing and Delivery 293
4. Claims 295
5. Systematizing Information 297
6. Utilizing Expert Knowledge 298
7. Industrial Traffic Manager 299
8. Incoming Shipments 300
9. Outbound Shipments 300

SECTION PAGE
10. Packing 301
11. Marking and Billing 302
12. Trucking 302
13. Auditing 303
14. The Traffic Adviser 303
15. Freight Forwarders 304
16. Service of the Forwarder 305

TRANSPORTATION

CHAPTER I

THE BUSINESS MAN AND THE RAILROADS

1. *Transportation and national development.*—The development of modern transportation systems and facilities has gone hand in hand with the development of modern business. Whether progress in the means of transportation by land and sea gave rise to modern commerce, foreign and domestic, or whether the needs of trade called forth these facilities in transportation, are questions of little moment. Enough that they are inseparable.

The service which transportation renders the world is too obvious to call for extended comment. Another volume of the Modern Business Text is devoted to "Foreign Trade and Shipping." Here we are concerned mainly with land carriage together with such coastwise and inland water transportation as are subsidiary factors in the movement of goods and passengers within the country. Sea-borne commerce ties nations more closely to one another, while the inland highways knit together the common interests of the various parts of a nation's territory.

Of these highways of commerce the railroads are the dominant element and what may be said of railroads in the course of this discussion will in the main apply to the minor instruments of inland traffic, tho the special features of these less important channels of trade will receive appropriate consideration.

2. *Influence of transportation on business.*—Transportation of freight and to some extent of passengers is a vital element in the conduct of any business enterprise and it is in order to inquire how the individual business enterprise is related to the transportation system as a whole, and what is the interest of the business man in its operation and development.

There are practically no business enterprises into which transportation does not enter in some degree as one of the costs of doing business and there are few in which the managers are not keenly conscious of the fact. In many instances the charges which must be paid for shipping goods, purchased and sold, are vital elements in operating expenses. As an element of cost, transportation charges affect every branch of business activity. Upon them may depend either the profits of the business, or the scope and growth of business operations or both.

3. *Transportation and profits.*—The profits on the sale of any commodity or service are measured by the margin between the price obtained for them and the cost of producing them. Where the price is fixed the profits of individual producers will vary according to their respective costs. Such an instance of fixed price

has been brought about by recent legislation affecting silver. In the mining industry transportation of the ore and product are very prominent elements. The price practically fixed by the government's action in purchasing bullion to replace the silver dollars exported during the War, not only determines whether certain mines can operate at all, but fixes the scale of profits for those which are being worked.

In few instances perhaps is the price of any commodity so nearly unchangeable as in the instance mentioned. But there are many influences in fixing the prices of commodities which tend toward stability. Changes in transportation costs, equally with changes in other costs of production or of marketing, must in the first instance affect the profits of those engaged in the business concerned in these changed conditions. To lower the transportation costs for any business already in operation means an increase in profits; hence it will readily be understood that the shipper is always keen to secure lower costs if possible. This pressure for lower rates is the chief characteristic in the relation of business to the railroads and a factor of dominant importance in the conduct of railway enterprises.

Profit making is the force behind all business activity, but it assumes many forms. The preceding paragraph concerns the rate of profit, and tho important, this is only one aspect of the matter. Many business men will tell you that they are quite as much interested in the amount of profit for a given period as in its rate upon a particular transaction. Hence any element affecting the profit rate does not necessarily mean only the swelling of the manager's bank account, but may be transmuted into many other forms of business activity some of which may be noted.

4. *Transportation and production.*—Transportation charges have a marked effect on the organization of manufacturing enterprise. The modern tendency towards a larger scale in production may be aided or obstructed by transportation facilities and charges. It is clear that low rates will favor this tendency, and that high rates will impede it.

Manufacturing plants in many cases draw their raw materials from a considerable distance. Low transportation rates increase the area from which they can draw supplies. The iron industry of the United States centered in the beginning about Pittsburgh, and iron ore as well as coal was drawn from its vicinity. With the development of the iron ore deposits of Minnesota, the continued prosperity of Pittsburgh is largely conditioned on inexpensive methods of transportation. Whether the cost of gathering the materials or of shipping the product will determine the location of an industry is a question to be decided in each particular case. In recent years we have seen the migration of the newspaper print manufacture into more and more remote regions following the sources of the raw material. In many instances in these and other industries that could be cited the survival of established concerns has been bound up with the cheap transportation of their raw materials.

Hundreds of concerns have a national distribution for their products. Sometimes they have a single producing center, sometimes several. Recent increases in freight rates have brought home to many of these organizations the desirability of scattering their productive forces by increasing operations of their subsidiary plants and by establishing new ones. It is clear that a large and permanent rise in railway rates would necessitate a reorganization of our industrial structure.

These considerations growing out of the location of industries and the scope of their activities furnish still another motive for the increasing pressure of business interests for lower transportation rates.

5. *Transportation and marketing.*—Similar considerations apply equally well to the transportation of the finished product. Low rates mean wide markets, high rates restricted ones. This is clearly the case with certain articles of great bulk and comparatively small value. Ordinary building brick, for example, is produced in many different localities. This has to be a scattered, local industry because the expense of shipping the product to distant points is prohibitive. Sometimes cheap water rates will give the brick industry a wider field of operations, but generally speaking it can do business only within a comparatively small radius.

Rates are a vital factor in the jobbing trade as they determine the area within which jobbers may profitably conduct their business. Once established they determine the location of jobbing centers, usually at competitive points. But each of these centers seeks to enlarge its business by increasing its area and is aggressively in favor of lower rates. It adds another influence to the business forces which are leagued together in the like endeavor.

6. *Exporter and importer.*—Export goods have their prices fixed in the world market. Rarely are they produced at the point of ocean shipment. Centers of production are frequently far inland. If the product is to reach the world's market it must often undergo a long railroad haul, and if the rates are too high it may be excluded from competition with the products of other nations. This fact is often held to justify lower rates for export goods than for goods consumed within the nation. Exporting interests are frequently dependent for their very existence upon such low transportation rates.

The importer is in the contrary case. His consuming public may be far inland and if goods are to reach it without such an enhancement of price as will curtail their use, railroad rates must in some instances be lower than for domestic goods of like character. It is on this theory that special import rates are sometimes allowed. Thus exporter and importer are added to the interests which assail the transportation agencies in favor of lower rates.

7. *Pressure for low rates.*—It is clear then that

railway rates are an important factor in industry and affect it in a hundred different ways. If the railways were the irresponsible autocrats they have sometimes been represented to be, if they could make changes in rates arbitrarily and did so, they could make or break any business enterprise. There have been times in the past when they have rested under the suspicion of being so anxious to "make" certain enterprises that they have been wholly indifferent to those that they might break.

The possession of power does not always imply its exercise and there is little doubt that if the railroads were in a position to be tyrants, self-interest would prevent their being tyrannical. But if the railroads ever had such power they have been shorn of it by legislation, the intended effect of which is to introduce the general public as a third factor in all relations between the railroads and the shipper. As a result existing rates are the resultant of many forces, compromises of the interest of the railroads, the shippers and the public.

If these three factors are conceived as of equal force there is likely to be an alignment of two against one in favor of low rates. The public will usually trail after the shipper. The latter as a rule fights to the limit against any increase of rate. He sees his profit lessened or his business curtailed. In similar fashion the shipper will use all his influence openly or covertly to secure lower rates which open to him a vista of increased profit or expanding business. To these general tendencies the exceptions are infrequent. In 1920 when all business was booming and shippers felt prosperous they made no objection to the increase of freight rates which was carried thru in that year. They realized that adequate service and facilities would be impossible without increased railway revenues. But this indulgence towards the railroads soon disappeared and after the fall in prices of commodities a strong agitation set in for the lowering of railway freight rates.

We must now inquire how this unceasing pressure for low rates is exerted and what forms it takes.

8. *Competition among goods.*—The first form which this pressure for lower rates takes is the competition among shippers for low rates on the particular kinds of goods which each handles. Each has a thousand reasons which he urges in season and out of season why the railroads should encourage his particular line of trade by low transportation charges.

The shipper's case finds an exact parallel in that of the importer. When a new tariff bill is under discussion the importer uses all the influence which he can bring to bear on the lawmakers to secure low tariff rates upon the goods in which he deals. Custom tariffs are voluminous but they can not mention by name every single article which may be imported and hence many of them fall under more or less general classifications. After the law is enacted the importer will use all the arts of persuasion with the customs officials and with the courts to secure a classification of his goods which will entitle them to be entered at a low rate of duty.

When we come to the study of freight rates and classifications we shall see that the conditions are such that the shippers engage in a similar activity. Rates are infinitely varied for different types of commodities, and so many considerations enter into their determination, that a judicious emphasis in argument may readily incline the scale as respects a given commodity one way or another.

9. *Geographical competition.*—Another phase of the effort to secure low rates results from the competition of different localities and regions with one another to secure advantages in lower rates. Thus California and Florida both produce citrus fruits and each seeks the widest possible market for its product. High rates from one region and low rates from the other would give the latter district advantages, perhaps undue advantages, in territory which the other region would consider its "natural market." The cotton mills of New England compete in some of their products with those of the South and it is clear that freight rates upon them will have an important influence in determining such competition. High freight rates by rail or water routes again might seriously impair the value of the iron ore deposits of Minnesota while low rates would enhance it.

At any given moment of time there is what might be called a geographical balance in the production and distribution of goods. One of the elements which enters into it is the rates charged for transportation between various points. But it is at best a highly unstable balance and the efforts to disturb it to gain advantage for one section or another are unceasing.

10. *Competition among shippers.*—If an individual shipper could obtain advantages in transportation he would be manifestly favored in his competition with others of his own class. If a big shipper could hold the big stick over the railroads and secure secret concessions he could gain an advantage over all his competitors. There have been times when the railroads yielded to such pressure and when freight discriminations were a fruitful source of profit to certain interests. It is to the advantage neither of the railroad nor of the public at large that there should be such collusion with the shippers. In more recent days every effort has been made to stamp it out.

But while legislation has sought to prevent discrimination among shippers in a like case and has largely succeeded in so doing, it can not remove and does not attempt to remove the differences between shippers in unlike situations. That higher rates are paid on small shipments than on larger ones, in particular that goods move at lower rates in carload lots than in less-than-carload lots is entirely justifiable. It is the proper ambition of every business man to secure for himself the lowest possible rate. His efforts to raise his production to the point where he can avail himself of carload rates, or to so arrange his shipments that he can secure their advantages, is an entirely legitimate phase of competition among producers seeking lower rates.

11. *Terminal advantages.*—The shipper's interest in the goods is not confined to their transit from place to place. He is equally concerned in their receipt by the railroad at the point of shipment and their delivery at destination. The facilities which the railroads offer and the charges connected with them are vital factors in the cost of transportation. The shipper is naturally concerned to increase these facilities to the utmost and reduce these charges to the minimum. It is important to him that the loading and unloading of cars should be done promptly, carefully and conveniently. If he can secure his own sidings and have the railroad brought to his door it is an appreciable advantage over competitors who must haul goods by wagon or truck to and from freight stations. These special and additional services which the railroad may perform are equivalent to rate reductions.

12. *Passenger traffic.*—Except for those concerns which employ traveling salesmen or traveling buyers, passenger traffic and rates are a minor element in the conduct of business operations. However, the very divergence between the rules and principles governing passenger traffic and those applicable to freight traffic serves to throw an important light upon the latter. A brief consideration of the passenger traffic and its place in railway operations will serve to

clarify conceptions as to vital elements of the transportation problem.

13. *Time element in transportation.*—The desire for low rates which is the leading aspect of the business man's interest in railroads is by no means his exclusive concern. It is true that he wants the cheapest possible service but that does not mean that he always wants the cheapest kind of service.

The great bulk of freight shipments are sent forward by ordinary freight trains which are moved by the railroads as quickly as possible but there are cases when this service does not fully meet the shipper's need. His business depends perhaps upon rapid communication. He may be interested therefore in fast freights, and for smaller shipments he may avail himself of express service and of parcel post. He expects to pay higher charges for such service than for ordinary freight. He must know just what facilities each of these special forms of service offer him, how they may be advantageously used in his business and what they are going to cost him.

He would not be a business man unless he measured service of whatever nature by cost. Nor would he be a business man if he did not seek to get each kind of service at the lowest cost.

14. *Government regulation of rates.*—This broad outline has shown that the interests involved in the making of railway rates are many and varied. We have considered only the consumer of railway service. It would have led too far to discuss in detail the view-

point of the railway manager. That his interest in the matter will often clash with that of the user of railway facilities needs no demonstration, and this fact adds to the mass of conflicting motives and tendencies which beset the matter.

The trend of events in recent years has demonstrated very clearly that in all matters affecting the railroad there is a third party in interest, namely the general public. If the railroads and the shippers were allowed a free hand in all their doings, individual shippers or a combination of them might be able to wring concessions from the railroads, while the latter would recoup themselves by added burdens upon those less able to defend themselves. A past generation settled once for all the fact that railway rates were matters which as the lawyers say are "affected by a public interest." It needs no argument, it is one of the basic facts of the present situation.

Government supervision and control of railroad rates was designed primarily to do away with discrimination, and to assure all shippers and all localities and regions a square deal. To accomplish this end the original powers assumed by the Federal Government and by state governments have been largely extended. Today government is the ultimate arbiter of all rates and new ones can not be promulgated without its sanction.

While there is a threefold alignment of interests, the railroads, the shippers and the public, it is not correct to assume that these forces are equally powerful, or equally opposed. The public represented by the government authorities has in the main been disposed to ally itself with the shippers, and in the outcome the question has arisen whether the interests of the railroads have received due consideration.

15. *Interstate Commerce Commission.*—The principal agency for the regulation of the railroads is the Interstate Commerce Commission established in 1887, under authority of the clause in the constitution of the United States which gives Congress the power to regulate commerce between the states. Earlier state commissions had been ineffective in correcting various abuses which had grown up because railway managers as a general rule took the ground that theirs was a purely private business. The recognition of a public and national interest in the conduct of transportation agencies which must of necessity have some of the features of a monopoly found expression in the establishment of the Commission. Thru the extensive powers granted to the Commission in the original act and subsequent amendments it has become a permanent and often the dominant factor in the administration of American railways. Frequent reference to its powers will be necessary thruout this volume and a detailed consideration of them will be given in later chapters.

16. *State commissions.*—As already indicated state regulation in a number of our states preceded Federal regulation. At the present time practically all of the states have some form of regulative authority. The

powers which they exercise over the railroads vary considerably. In some cases they have a limited authority over intrastate rates and fares and in others they exercise a broad control in so far as the rates established do not conflict with rates established for interstate traffic.

While in many cases the state commissions have rendered good service in reducing discrimination, securing more equitable rates and fares, and obtaining better service, the appointments to them have often been considered as a reward for faithful political services. In consequence the state commissions have not as a whole maintained so high a standard of efficiency as the Interstate Commerce Commission. Furthermore, it has not been an easy matter to determine the exact limits of state and Federal power in the regulation of the railways, and the states both in their legislation and in the administrative orders of their commissions have often found themselves in conflict with the orders and policies of the Interstate Commerce Commission.

17. *Land highways.*—The dependence of the business world upon transportation and its dependence upon railroads are practically one and the same thing. In other fields of activity one of the great regulators of economic life is the possibility of securing a substitute for a product, the conditions of whose sale are not satisfactory to the consumer.

In the field of transportation, there are not, except in limited areas and for special purposes, any satisfactory substitutes for the railroad. Within certain narrow limits the land highways and the waterways offer a restricted competition to steam railroad transportation.

So long as the horse-drawn vehicle was the only one known on the public roads it could not, even for short distances, compete with the steam roads. But the advent of the electric railway and the development of the motor truck have to some extent changed this situation. In local traffic these agencies are actual and potential competitors with the steam railroad, in the transportation both of passengers and freight. It is not likely that in local transportation they will supersede the steam road but they are already dividing the field.

18. *Coastwise and inland water traffic.*—Coastwise transportation and that on canals and rivers offers in some localities a real substitute for the steam road for certain kinds of services. It is probably capable of far greater expansion than it has at present. Despite the large sums spent on our rivers and canals they are not the highways of internal traffic which are found in the rivers of some foreign countries. This fact however does not prevent them from being an important transportation influence. Their potential competition is something with which the railroads must reckon, and as we shall see is a most important factor in determining certain railroad rates.

19. *Railway expansion and operation.*—If the railways fail to serve the shipper as he would like, it is

idle to seek for substitutes. He must use the railroad and make the best of it. While he is interested in low rates he is equally interested in adequate and efficient service. Business and the railroads must prosper together or neither can have the full development of which it is capable.

In times past the business world did not question this fact. In the early days of railroad building it made all manner of sacrifices to secure railroads. Governments of nation, state and city gave subsidies to railroad building, and men of business made large investments of capital to secure the expansion of the railway net.

There followed a period of suspicion when every effort was made to curb the railways not in building but in operation. Out of this feeling grew the rate-making legislation to which reference has already been made. Little by little the lines of restriction have grown more and more taut until there is ground for belief that the railroads have been strangled. From control of rates, government regulation has extended to supervision over operation. It has, it is claimed, not only limited revenues but also increased costs.

From being one of our most prosperous industries and the favorite investment for the savings of the people, the railroads have been reduced to a somewhat precarious financial situation. The flow of capital into the hands of railway managers has almost stopped.

Under these conditions railway building has been reduced to a minimum and railway equipment has deteriorated. This process had been going on before the war and when it came the physical equipment of the roads was hardly able, even under government operation, to meet the demands made upon it.

It is becoming increasingly clear to the business world that something must be done to restore to the railroads a reasonable prosperity. There is no unanimity of opinion as to what it should be, but the need is keenly felt everywhere.

20. *Using the railways.*—In rapid outlines we have endeavored to sketch the interest of the business man in the railroads. We have seen how deeply he is concerned in questions of rates, classifications, special services, and above all in the prosperity of the railroad. In greater detail these are to be the subjects considered in the chapters which follow.

Before leaving the subject however, there is another matter which must engage our attention. Given the existing railroad facilities how shall the business man use them to best advantage? The ordinary shipment of freight, what it involves and what rights and privileges it confers must be explained. It will have appeared, however, that matters of rates and regulations are very complicated, and it must be evident that a man with expert knowledge of railway matters could render great assistance to the shipper and effect many economies for him. Our concluding chapter will therefore consider the possible services of the transportation expert and the manner in which different business concerns avail themselves of his experience and advice.

REVIEW

How may transportation costs affect the organization and development of manufacturing and marketing?

Why are lower rates granted to exports and imports than for goods produced and sold within the country?

Why is the shipper interested in the terminal facilities which a railroad has to offer?

Discuss the time element in transportation in its relation to business needs.

How is the public interested in government regulation of rates?

What have been the good and bad effects of state commission regulation over railroads?

Discuss the reasons for the recent slowing up in American railroad development.

CHAPTER II

THE TRANSPORTATION AGENCIES

1. *The Railroads.*—If we were to sit down before a large map on which was indicated the vast network of railroad lines which traverse the United States we should note some sharp contrasts between the various sections of the country. In New England we should find the traffic net densest of all, as dense as in the thickly populated countries of Europe, with lines radiating in all directions from the large cities, and with the exception of the upper half of the state of Maine, where settlement is sparse, fairly gridironing the territory.

Farther south, in the Middle Atlantic states, the lines of traffic would be found somewhat fewer in number with the principal arteries of traffic running east and west, diverging like the sticks of a fan, from the northern Atlantic seaports. Cross lines running north and south serve as feeders to the main lines of traffic and to the ports situated on Lake Erie and Lake Ontario. At the Alleghany mountains the lines converge to enter the mountain passes and diverge again after that barrier has been crossed.

In the region west of the Alleghanies to the Mississippi the main lines of traffic, known as trunk lines, continue to bear westward with lines deviating to the southwest to reach the important railroad centers of Indianapolis and St. Louis and to the northwest to reach Chicago. As in the territory east of the Alleghany mountains, a large number of feeder lines running north and south link up intervening territory with the trunk lines.

The territory comprising the southern states presents a decided thinning out of the railroad net as contrasted with the sections just mentioned. Here we should find lines criss-crossing each other at many points but bearing generally in a southwesterly direction. Lines would also be found paralleling the south Atlantic Coast and reaching the principal cities situated upon it. The same configuration, to a smaller extent, would obtain along the Gulf coast.

West of the Mississippi to the Missouri the lines become fewer; they are roughly parallel to each other, extend from east to west and connect the cities located at river crossings. Lines running north and south are less numerous than in the terrritory to the east of those rivers.

Continuing westward from the Missouri the railroad net becomes elongated and is marked by comparatively few lines. They continue to move towards the west to the Pacific coast cities with a small number diverging to the southwest and northwest.

On the Pacific coast the railroad net is marked by a single hair line, reaching from north to south the full length of the coast, with offshoots at scattered points to form feeder lines or other connections with cities situated at some distance from the seaboard.

2. *Physical aspects of the railroads.*—If the map which we have been studying had been so marked as to distinguish single and double-track railroads, the first impression to be gained would be the relative infrequency of the latter. In the United States as a whole only a little more than one-eighth of the entire railway system is double tracked.

The following table gives the miles of track for class 1 railroads (railroads with operating incomes above $1,000,000) in the eastern, southern and western districts[1] at the end of 1919.

Miles of Railway Tracks of Class 1 Carriers on December 31, 1919, Covered by Reports of Operations

Territory Covered	Number of Carriers Represented	Road	Second Main Track	Third Main Track	All Other Main Tracks	Sidings and Yard Tracks	Total all Tracks
Eastern District	72	[2] 59,444	17,222	2,577	1,876	42,317	123,436
Southern District	36	43,546	4,145	57	189	16,890	64,828
Western District	81	[3] 131,373	10,012	286	203	45,286	187,160
Grand Total	189	[4] 234,363	31,379	2,920	2,268	104,493	375,424

[2] Includes 1200 miles in Canada. [3] Includes 752 miles in Canada. [4] Includes 1952 miles in Canada.

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[1] The eastern district as defined by the Interstate Commerce Commission embraces the territory "bounded on the west by the northern and the western shore of Lake Michigan to Chicago, thence by a line to Peoria, thence to East St. Louis, thence down the Mississippi River to the mouth of the Ohio River, and on the south by the Ohio River from its mouth to Parkersburg, W. Va., thence by a line to the southwestern corner of Maryland, thence by the Potomac River to its mouth. The southern district comprises that portion of the United States bounded on the north by the eastern district and on the west by the Mississippi River. The remainder of the United States, exclusive of

It will be seen from the table that railroads in the eastern district lead the other districts in number of miles of second main track and greatly exceed them in miles of third and fourth main track, altho the total mileage for this district is less than for railroads in the West. It may be noted, however, that the amount of double track is increasing. In 1890 the much smaller railroad (net 156,404 miles), had only a little more than 5 per cent of its mileage double-tracked, in contrast with somewhat more than 13 per cent of a larger mileage in 1919.

3. *Commodities making up freight traffic.*—When one considers that the different sections of the United States have such widely diverse resources and industries, it is at first glance surprising to find, when commodities are classed in large groups, apparently little difference in the character of the traffic in the several sections. The tonnage originating on class 1 railroads of the United States during 1920 was over 1¼ billion tons of freight. Divided into classes of commodities the products of the mines constituted nearly three-fifths of the total, 57 per cent; manufactured and miscellaneous products came next with 20 per cent, followed by products of agriculture which formed approximately 9 per cent. The products of these groups made up 86 per cent of the tonnage originating on class 1 railroads.

The accompanying table shows that in the eastern

Alaska and of the island possessions is included in the western district."

district, products of the mines form over three-fifths of the tonnage originating on eastern railroads and manufactured miscellaneous products over one-fourth. In the previous year, figures available for individual commodities show that bituminous and anthracite coal formed over two-fifths of the total tonnage; sand, stone and kindred products over 9 per cent; coke over 3⅗ per cent and cement, brick and lime over 3½ per cent. Other districts show a similar predominance of mineral products.

4. *Recent railway development.*—Railroad building in the United States reached its zenith shortly after 1890 when the pioneer work of railroad construction was completed. After that period railroads gave their attention chiefly to the intensive development of their lines and to the improvement of their equipment and facilities. In 1910 the railroad mileage of the United States was over 240,000 miles. By 1914 this figure had grown to 252,000 miles. With the outbreak of the War little attention was given to construction of new lines, all but the most urgent construction being deferred until after the War. The five years 1914-1919 saw the building of only 5,200 miles of line, an average of 1,050 miles a year, and the last of them 1919, had a smaller construction of new lines, 686 miles, than any year since 1893. Moreover, since 689 miles of line were abandoned in 1919 the result was a decrease of three miles in the railroad net.

In 1920 the railroad lines operated in the United

Revenue Freight Tonnage, by Classes of Commodities for Tonnage Originating on Class I Carriers' Lines, in each of three Districts, for Year ended Dec. 31, 1920

Class of Commodity	Total		Eastern District		Southern District		Western District	
	Tonnage (tons of 2,000 pounds)	Per cent of aggregate	Tonnage	Per cent of aggregate	Tonnage	Per cent of aggregate	Tonnage	Per cent of aggregate
Products of agriculture ..	110,839,554	8.82	25,883,601	4.27	14,140,870	6.26	70,815,083	16.71
" " animals	26,594,856	2.14	7,427,608	1.15	2,295,985	0.90	16,871,263	4.00
" " mines	713,113,201	56.75	374,549,637	61.68	136,934,333	61.17	201,629,231	47.53
" " forests	100,765,537	8.03	17,480,837	2.79	29,844,479	13.35	53,440,221	12.48
Manufactures & miscellaneous	251,864,290	20.05	156,681,097	25.83	31,020,218	13.85	64,162,975	15.05
Merchandise-all L. C. L. freight	53,202,296	4.21	25,722,130	4.28	9,891,288	4.47	17,588,878	4.23
Grand Total	1,256,379,734	100.00	607,744,910	100.00	224,127,173	100.00	424,507,651	100.00

States, according to the Bureau of Railway News and Statistics, were 250,834 miles in length, an increase of 11,182 miles or 4.6 per cent for the decade. The miles of all track operated including second, third and fourth track, yards and sidings totaled 392,895, measuring an increase of 43,736 miles, or 12.03 per cent, for the decade.

While construction of new lines since 1910 has lagged somewhat the railroads have given a great deal of attention to the development of their equipment. Locomotives of greater tractive power have been built and the capacity of cars enlarged until we now have box cars of 50 tons capacity and open-top cars for the carrying of coal and ore up to 75 tons capacity. In both passenger and freight car construction steel has largely replaced wood in all new equipment. Safety couplers and air brakes have been made part of all standard equipment for railroads. Heavier rails, block signals, derailing and other devices have added to the safety of train operation. Along all lines railroad development has turned toward the bettering of facilities for train movement.[1]

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[1] Between the years 1910 and 1920 the number of steam locomotives on class 1 railroads has increased from 58,240 to 64,366, or 6,126, and their average tractive power from 27,282 pounds to 36,312 pounds. During the same period the number of passenger train cars increased from 47,095 to 53,508, or 6,413, and freight cars from 2,135,121 to 2,321,517, or 186,396. The average capacity of freight cars over this period increased from 36 to 42.2 tons, an increase of 5.6 tons.

A similar advance has been made in car construction for class 1 railroads. The equipment in use in the year 1919 comprised: passenger train coaches 29,476, of which 9,843 were of steel underframe: box cars

5. *Railway ownership.*—If the map of the railroads of the United States were to distinguish by different colors the different ownership of the roads it would be seen that many of them formed part of a comparatively few large systems. The railroads of the United States have gradually become merged into larger and larger units until many of the principal lines to-day are parts of great systems controlled by strong financial interests. This development was accelerated after a Supreme Court decision of 1897 made rate agreements between railroads a violation of the Sherman Anti Trust Act. Some years later in 1914 the pendulum swung the other way when holding of stock in one railroad by another with which it competed was made illegal. While ownership groupings are universally recognized as important factors in the railway situation, the nature of some of the methods of control, particularly that of stock ownership, is such that it is difficult to give a complete list of all lines affiliated in a commonly controlled system. One such grouping was given by Professors Emory R. Johnson and T. W. Van Metre in their volume on "Principles of Railroad Transportation." In reproducing this statement the classification remains the same, but the figures, given in round numbers, are those of the year 1920.

1,059,296, of which 546,852 were of steel or steel underframe; coal cars 949,931, with 775,033 of the number constructed of steel or having a steel underframe.

PRINCIPAL RAILROAD SYSTEMS AND LINES IN THE UNITED STATES, 1921.

Note: In stating the length of lines in miles all fractions of miles have been disregarded.

New Haven and affiliations	7,287
New York, New Haven and Hartford, 1986, Boston and Maine 2300, New York, Ontario and Western, 570, Maine Central 1215, Central New England 301, Rutland 915.	
Vanderbilt Interests	21,384
New York Central 6078, Michigan Central 1866, Lake Erie and Western 738, Cleveland, Cincinnati, Chicago, and St. Louis 2421, Pittsburgh and Lake Erie 225, Toledo and Ohio Central 503, Chicago, Indiana and Southern 128, Western Maryland 798, Chicago and Northwestern 8402, Indiana Harbor Belt Line[1] 121, Toronto, Hamilton and Buffalo 104.[2]	
Pennsylvania System	11,622
Pennsylvania Railroad 7317, Long Island 395, New York, Philadelphia and Norfolk 122, Pittsburgh, Cincinnati, Chicago and St. Louis 2407, West Jersey and Seashore 356, Grand Rapids and Indiana 568, other lines 457.	
Delaware, Lackawanna and Western	957
Philadelphia and Reading System	1,127
Wabash	2,473
Lehigh Valley	1,449
Morgan Interests	31,189
Erie 2405, Pere Marquette 2239, Chicago Great Western 1496, Southern 9326 (including Mobile and Ohio, 1165 and other subsidiaries 1151) Cincinnati, New Orleans and Texas Pacific 338, Atlantic Coast Line System 14,101	

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[1] With Chicago, Milwaukee and St. Paul Railway.

[2] With Canadian Pacific Railroad.

(including Louisville and Nashville 7966 and Nashville, Chattanooga and St. Louis 1247), other subsidiaries 1284.	
Seaboard Air Line	3,563
Chesapeake and Ohio	2,544
Chicago, Rock Island and Pacific (including Choctaw, Oklahoma and Gulf 965, and other subsidiaries 569)	9,657
St. Louis San Francisco Railway	5,151
Missouri Pacific	7,300
International and Great Northern	1,159
Texas and Pacific	1,947
St. Louis Southwestern Railroad Company	1,776
Minneapolis and St. Louis Railroad Company	1,650
Hill Interests	24,618
Chicago, Burlington and Quincy 9637 (including Chicago, Peoria and St. Louis 247) Great Northern Railway System 8172, Northern Pacific Railway Company 6809.	
Chicago, Milwaukee and St. Paul Railway Company (including Chicago, Peoria and St. Louis 247)	10,987
Denver and Rio Grande—Western Pacific	3,499
Atchison, Topeka and Santa Fe Railroad	12,042
Union Pacific—Southern Pacific	30,241
Union Pacific 3614, Oregon Short Line 2359, Oregon-Washington Railroad and Navigation Company 2224, St. Joseph and Grand Island 258, Los Angeles and Salt Lake Railroad Company 1169, Southern Pacific System 12,455 (including Southern Pacific Railway of Mexico 1246), Illinois Central 8162 (including Central of Georgia 1914, and Yazoo and Mississippi Valley Railroad 1382)	
Baltimore and Ohio Railroad	5,155
Delaware and Hudson Company	910
Total	199,687

6. *Commission's plan of grouping railroads.—*

Under the Transportation Act of 1920 (section 5, paragraphs 4 and 5,) the Interstate Commerce Commission was instructed to prepare a plan of consolidation of the railroads in continental United States into a number of systems. In this division competition was to be preserved as far as possible and the channels of trade kept undisturbed. The systems were to be so arranged that "the costs of transportation as between competitive systems and as related to the values of the properties thru which the service is rendered shall be the same, so far as practicable, so that these systems can employ uniform rates in the movement of competitive traffic and under efficient management earn substantially the same rate of return upon their respective properties."

In the plan which the Commission evolved it endeavored so to group the railroads as to give geographic scope to each system; to adapt each system to its surroundings so as to consider the nature of the traffic in the territory; to secure "administrative practicability," that is, systems shall not be too large to permit of efficient management; to preserve competition between rival railroads and yet secure economical transportation of freight and passengers; and to secure an equalization of earnings between competitive roads so as to permit a rivalry of service on a fair basis. These requisites of a sound consolidation plan the Commission aimed to secure without disturbing in any manner the corporate integrity of the railroads.

The plan, as it stood in 1922, proposed the grouping of class 1 railroads into 19 systems as follows:

1. New York Central
2. Pennsylvania
3. Baltimore and Ohio
4. Erie
5. Nickel Plate-Lehigh Valley
6. Pere Marquette
7. New England

7A. New England-Great Lakes

8. Chesapeake and Ohio
9. Norfolk and Western
10. Southern
11. Atlantic Coast Line
12. Illinois Central-Seaboard
13. Union Pacific-North Western
14. Burlington-Northern Pacific
15. Milwaukee-Great Northern
16. Santa Fe
17. Southern Pacific-Rock Island
18. Frisco-Katy Cotton Belt
19. Chicago-Missouri Pacific

Space will not permit of an enumeration of the railroads which the Commission recommended for each system. The following roads which comprise those the Commission proposed to place in the Pennsylvania system will serve to illustrate the methods of grouping.

PENNSYLVANIA SYSTEM

- Pennsylvania
  - West Jersey & Seashore
  - Long Island
  - Baltimore, Chesapeake & Atlantic
  - Cumberland Valley
  - Maryland, Delaware & Virginia
  - New York, Philadelphia & Norfolk
- Pittsburgh, Cincinnati, Chicago & St. Louis
  - Waynesburg & Washington
- Grand Rapids & Indiana
- Cincinnati, Lebanon & Northern
- Ohio River & Western
- Louisville Bridge & Terminal

Wheeling Terminal
Toledo, Peoria & Pittsburgh
Central Indiana
Pittsburgh, Chartiers & Youghiogheny
Monongahela
And all other railway properties controlled by any of the above carriers under lease, stock ownership, or otherwise, except the Norfolk & Western and railway properties controlled by it, which may be included in system No. 9, Norfolk & Western.

Notes: The Lorain, Ashland & Southern may be included in system No. 4, Erie, which owns one-half the stock, the Pennsylvania owning the other half.

The Lake Erie & Pittsburgh; Central Indiana; Pittsburgh, Chartiers & Youghiogheny; Monongahela may be included in System No. 1, New York Central, which controls one-half the stock, the Pennsylvania controlling the other half.

7. *Water transportation in domestic trade.*—With its extensive coast line, with its many navigable rivers and with the Great Lakes along its northern boundary, the United States would seem to be supplied with navigable waterways capable of affording an effective competition to the rail lines. It is to be remembered, however, that there are comparatively few localities which can be served by water alone, and that the full development of water transportation depends upon close cooperation with the railroads. This is often lacking. In times past, the railroads have stifled water competition by buying up river, lake and coastwise lines and then curtailing the service or abandoning it altogether. Even the coastwise trade has been checked in this way. The Panama Canal Act positively prohibits railroads from operating

competing vessels thru the Canal. On other water routes it establishes the same principle but allows exceptions to it when the Interstate Commerce Commission deems operation of vessels by railroads to be "in the interest of the public and of advantage to the convenience and commerce of the people, and that such operation will neither exclude, prevent, or reduce competition on the route by water under consideration."

8. *Coastwise and lake traffic.*—The coastwise traffic of the ports on the Atlantic, Gulf and Pacific coasts in 1920 aggregated 229,101,435 tons, valued at $14,802,356,115. This is approximately 10 per cent of the tonnage carried by railroads in the same year. In addition to the tonnage carried in coastwise commerce, traffic on the Great Lakes in 1920 amounted to 209,896,291 tons, of which 197,496,287 tons were carried in domestic commerce. Traffic on the Lakes is rapidly expanding and with the exception of the winter months, when navigation is closed by ice, the lake carriers compete successfully with the railroads in the transportation of both freight and passengers.

The following table gives the classes of commodities carried and the tonnage in coastwise and lake traffic in 1920. The table shows that of the 426 million tons carried by water, 225 million tons or more than one half consist of non-metallic minerals. Over one-third of the total tonnage was carried along the Atlantic Coast.

Domestic water-borne commerce of the ports of the United States for the calendar year, 1920, segregated by classes of commodities, by grand divisions[1]

Classes of commodities	Grand Divisions				
	Atlantic Coast	Gulf Coast	Pacific Coast	Great Lakes	Total
Animals and animal products, except wool and hair ...	2,281,635	896,365	288,822	42,319	3,509,141
Vegetable food products, oil seeds, expressed oils, and beverages	6,095,425	553,995	2,858,136	5,499,026	15,006,582
Other vegetable products, except fibers and wood ..	796,485	74,291	22,595	8,621	901,992
Textiles	1,700,947	119,825	77,544	7,556	1,905,872
Wood and paper ..	3,804,719	853,543	13,495,400	716,250	18,869,912
Nonmetallic minerals	130,978,244	11,523,925	17,332,162	65,452,784	225,287,115
Ores, metals, and manufactures, except machinery and vehicles	4,238,504	534,080	519,085	123,538,542	128,830,211
Machinery and vehicles	601,541	37,645	81,584	169,626	890,296
Chemicals	5,767,797	1,118,774	204,171	10,789	7,101,531
Unclassified	17.626,964	228,871	4,407,176	2,050,774	24,313,785
Total	173,892,161	15,941,314	39,286,675	197,496,287	426,616,437

9. *River and canal traffic.*—The rivers of the United States fall into three groups—those flowing to the Atlantic, to the Gulf of Mexico and to the Pacific. In 1920 the commerce carried on these waterways was 79,735,141 tons and was valued at $1,716,403,048. In comparison with the freight tonnage carried that year by the railroads, over 1¼ billion tons, it formed only a small part of our domestic commerce.

On the Atlantic slope the river commerce carried in 1920 amounted to 15,172,249 tons and was valued at $531,822,893. The most important of the rivers emptying into the Atlantic is the Hudson which is navigable as far as Troy, 170 miles from the sea. This river forms a connecting link with the Erie Canal and is used largely by barges and river steamers to haul package and bulk freight. In 1920 over 3,000,000 tons of freight valued at $169,726,452 were carried on this river. Of the other rivers on the Atlantic slope the most important commercially are the Delaware, the Connecticut (below Hartford) the Potomac, and James. South of the James, from Virginia to Florida are numberless rivers, but they are of little commercial importance.

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[1] Includes coastwise receipts and shipments, and other domestic; excludes general ferry and car-ferry traffic and cargoes in transit.

On the Gulf coast the Mississippi, with its tributaries, the Ohio and Missouri, overshadows in importance all other rivers. This waterway is navigable for 1600 miles and has played an important part in the agricultural, industrial and commercial development of the United States. The commerce on this river and its tributaries in 1920 amounted to 51,132,004 tons valued at $835,968,837. Over $7,000,000 of this amount consisted of rafted and floated timber.

The commerce on the rivers of the Pacific coast was less in volume and amount than that of the rivers emptying into the Gulf or the Atlantic and in 1920 amounted to 7,859,212 tons valued at $198,849,269. The most important river in this group was the Sacramento which carried 1,377,700 tons of freight valued at $53,946,146. All but a small part of this tonnage was package freight. Other rivers of importance on the Pacific Slope are the San Joaquin and the Williamette River above Portland.

Like the rivers of the United States, the importance of the canals was greater formerly than it is today. Before the coming of the railroads canal traffic was considerable but later canal lines fell very generally into disuse. They ceased to figure prominently after 1850 and in 1880 two-fifths of the canal mileage had been abandoned. Only in New York State where the Erie Canal was opened to traffic in 1825 has any attempt been made to meet railroad competition. On this waterway canal tolls were abandoned in 1882 but even this measure proved ineffective and the railroads continued to gain at the expense of the Canal.

In recent years interest in canals and other inland waterways has revived. It has become plainly evident that the railroads are overburdened with freight and that some auxiliary service will have to be utilized to relieve them.

10. *Highways.*—The development of the highways of the United States has been relatively slow when compared with the development that has taken place in railroad transportation and in industry. In the early years of the 19th century private turnpike companies constructed a number of good roads, as the Lancaster and Montgomery pikes in Pennsylvania still testify, and many states engaged in road construction to link up their principal cities. It was

not until the coming of the automobile, however, shortly after 1900, that interest was really aroused in road building. Since that time both Federal and state governments have constructed a growing mileage of good highways.

There are in the United States nearly 2½ million miles of roadway of which 299,000 or 12 per cent have been improved. In the work of highway construction the Federal government is cooperating with the states. In the fall of 1921 a Federal Highway Act was passed by Congress carrying an appropriation of $75,000,000 for the fiscal year ended June 20, 1922 of which $25,000,000 was made immediately available. The law called for the expenditure of this money in the proportion of $43 of Federal money to every $57 expended by the states. Before the money could become available the projects of the states for road improvement had to be approved by the United States Department of Agriculture. Each state was to designate for improvement a system of highways not over 7 per cent of the state's total mileage. This system was to be divided into primary or interstate highways and secondary or intercounty highways of which the former were to constitute three-sevenths of the system. Subject to exceptions by the state highway commission the law designated the proportion of the costs which might normally be defrayed from Federal funds. It also required the state to provide funds for construction, reconstruction and maintenance of all Federal-aid highways.

The Federal government thru the Department of Agriculture is also at work on making tests in order to improve road construction and to measure the impact of rapidly moving traffic on road surfaces and cooperates with the states in this work.

In addition to the work of the Federal government, states and counties are doing a large amount of road building. In the year 1920 state and county bond issues authorized for road building aggregated over $331,000,000. Minnesota alone, including its counties, authorized a bond issue for this purpose of $104, 000,000.

That the demand for roads is widespread is shown not alone by the above figures but also by the highways which have been already constructed. The Lincoln Highway reaching in an almost direct line westward from New York to San Francisco and the Dixie Highway from Chicago to Florida mark only the beginning of trunk lines which will join together the various sections of the United States. While the United States is still far behind Europe in highways the strides made in the last ten years give evidence that good roads have been recognized as an essential part of our transportation facilities.

11. *Highway Traffic.*—The great development in highway construction has been due almost entirely to the automobile which for effective operation requires a good road. The automobile has been responsible also for the creation of highway traffic in both passenger and freight service. According to motor vehicle

statistics compiled by the Bureau of Public Roads, U. S. Department of Agriculture, there was a total of 8,369,905 passenger cars and 841,690 motor truck and commercial vehicles that passed over our highways in 1920. These vehicles are used principally in city traffic and in so-called "short-haul" traffic for distances anywhere within a radius of 100 to 300 miles. No record has been taken of the passengers and freight carried in this way but it is known to have reached very large proportions. For the carriage of freight alone there were in the United States in 1920 a total of 2949 motor truck express companies. From Cleveland there were 46 motor truck lines in operation in 1920, from New York 40, Chicago 34 and Pittsburgh 30. Between New York and Philadelphia 19 lines at that time were engaged in motor truck service.

12. *Electric railroads.*—We usually associate the electric railways with the transportation of passengers in urban communities and do not regard them as a part of the general transportation system. Yet in interurban and suburban traffic they constitute an element which should not be overlooked. Such lines have been most highly developed in the East North Central States (Ohio, Indiana, Illinois, Michigan and Wisconsin), New England and the Middle Atlantic states. The traffic is also well developed from many of our large cities into the suburbs.

Passenger traffic is of course far more important than freight. In the year 1917 some 917 electric railways in the United States derived an income of $18,546,504 from freight, mail, baggage, express and milk of which amount $5,607,075 was earned by companies operating in East North Central States and $4,207,085 by companies in Pacific Coast states. Revenue from passenger traffic, on the other hand, including all forms of traffic reached a total of $603,129,620 or over 33 times that derived from freight and other service.

Electric interurban roads compete successfully with steam roads in the carriage of both passengers and freight in short-haul traffic up to a distance of about 50 miles, and to a less extent over distances up to 150 miles. Little effort has been made to lower the rates for these distances charged by steam railroads but in many sections the electric lines offer a more frequent service than the rail lines and assure greater comfort and convenience to passengers. In some sections of the United States the railroads work in conjunction with the electric lines but this has not generally been the case.

While we have seen that the passenger traffic constitutes the largest source of income of electric lines the freight service has not been neglected. In farming communities a large amount of produce of the farm travels at night to market by trolley freight. Most of this business is non-competitive so far as the railroads are concerned but within recent years the motor-truck express companies have made strenuous endeavors to secure it. The electric lines are used to carry package freight between cities and in some localities perform a feeder service in connection with the railroads. It is doubtful if the electric lines will ever become competitors of rail lines in long distance traffic and no effort has been made as yet to secure it. Recently the electric lines have been forced to divide this class of traffic to some extent with the motor truck. It is likely that this traffic will pass to these two agencies leaving the thru business to the railroads.

REVIEW

What are the leading characteristics of a railroad map of the United States?

Compare eastern railroads with those in the south and west with regard to (a) mileage; (b) trackage; (c) commodities carried.

Discuss railroad development in the United States since 1890.

What does the Interstate Commerce Commission aim to accomplish in its proposed grouping of the railroads?

What are the main provisions of the Federal Highway Act?

From what source does the interurban trolley road secure its largest income? In what kind of traffic is it able to compete successfully against the railroads?

CHAPTER III

BASIC ELEMENTS IN RAILROAD RATES

1. *Railroading differs from other businesses.*—Railroad transportation is an industry which differs widely from the average business. Every business man naturally endeavors to sell his product so as to net him a profit over its cost of production. While over a long period this profit may vary and may in times of depression be wiped out entirely, still in the long run and with competition free he secures a profit large enough to justify the continuance of his business. Otherwise he will draw out his capital and turn to some new and more profitable venture. When an industry is going thru a highly successful period other business men will crowd into it in order to share in its profits. But the transportation business, while not subject to the emergence of new competition in times of prosperity, can not run to cover and save itself from loss when profits dwindle and disappear.

The railway manager is confronted with difficulties which affect him far more acutely than they do other business enterprises. In the first instance he is less able than are men in other forms of business to increase his production in response to a sudden demand. Again when demand slackens he can not pare his costs as readily as do other enterprises. Finally the railroad manager can not of his free will fix the price of the service he renders and so adjust income to costs.

If the demand for transportation is brisk it is difficult for the railroads to furnish the equipment and facilities in time to meet the demand. The best operated railroads endeavor to keep in advance of demands by providing extra tracking, enlarged terminals and additional rolling stock. But even in so doing there are physical limitations to every railroad property beyond which the facilities can not be extended. When the "saturation point" is reached the railroad refuses to accept freight and declares a period of embargo. If such a situation arose in another business it would adjust itself thru the law of competition. On the one hand the competition of the users would enhance the price of the service and this would diminish the demand, while on the other hand large profits would attract other producers and thus increase the supply.

The railroad again is a conspicuous illustration of an industry in which a large capital is represented by fixed assets, and in which an unusually large proportion of the capitalization is represented by borrowed money. This affects materially the question of costs. A large part of the railroad expenses, its fixed charges such as taxes and interest on funded debt, are constant and continue whether the industry is going thru a period of prosperity or depression. These expenses must be met as long as the railroad remains solvent. They absorb about one fourth of the railroad revenue. If the business of transportation becomes so slack that there is no money in it for the railroads the investors are unable to withdraw from business. In fact, even after a railroad has failed and passed into the hands of a receiver it must continue to be operated, the receiver merely supplanting the president and directors, and the bondholders replacing the former stockholders as owners of the corporation. Nor are these the only fixed elements of cost. In the actual work of transportation there are large groups of expenditures which either remain constant or change but little as the volume of business transacted rises or falls.

In the third place railroading differs from other forms of business in the comparative fixity of the prices charged to customers, that is in freight rates and passenger fares. While the shipper is concerned with their reasonableness and makes his influence felt in that direction he is also interested that they should be stable. It was to secure these results that the Interstate Commerce Commission was instituted. Railway managers in short can not fix rates according to their judgment as other business men fix the prices of the commodities in which they deal.

2. *Cost of service.*—Admitting all these points of difference between railroading and other business enterprises it is however generally conceded that here as elsewhere there ought in the long run to be a proper adjustment between railway income and the cost of

the service. Tho this general proposition meets with universal assent discussion of the matter is often involved and sometimes acrimonious because the term cost of service is used to mean several very different things.

The railroad executive thinks of cost of service as the entire outlay for running the railroad as a whole. He includes in it not only the operating expense wages, material, repairs, but also upkeep, insurance, taxes, depreciation, and interest charges upon borrowed capital. He considers it only right and fair that after all these expenditures are met the earnings should provide a reasonable dividend upon the capital stock and make a suitable contribution to the surplus.

There is another use of the term cost of service in railroad circles. It is that of the traffic manager who approaches cost of service from a different angle. He is concerned with the expense of conducting transportation. He believes that each article carried should contribute something to the expenses of operation, tho not necessarily in equal measure with others, and he endeavors to have rates and classifications so fixed that no article will be carried at a loss and as many as possible at a profit. This does not preclude the traffic manager of a railroad from accepting freight at extremely low rates to prevent the business from going to a rival carrier or to develop a new industry or region. Furthermore, on many railroads, the bulk of the traffic is in one direction, as westbound or southbound. This necessitates oftentimes a back haul of empty cars, which, as extra mileage, gives no return to the railroad. To reduce this expense the traffic manager will endeavor to secure traffic which, while yielding no profit to the railroad, helps to reduce the cost of train operation. It is to be noted that this view of the cost of service as well as the preceding has in view railroad operations as a whole. It is equally clear that if cost of service be taken in this narrower sense, a much wider margin between it and railway income will be required for the welfare of the undertaking than if cost of service is understood in the broader sense in which it is employed in the preceding paragraph.

There is another use of the term cost of service which associates it not with the general cost of railway management as a whole but with the particular cost of rendering each specific service. This is frequently the viewpoint taken by the shipper of goods by rail. The cost of shipping his goods should, he believes, be worked out on a basis of cost of the individual service, just as he figures separate costs in his own business. To him all commodities awaiting shipment are on the same plane and he fails to recognize why any distinction should be made between the charges made for transporting raw materials and those for finished goods. He is disposed to think that it costs as much to the railroad to haul a carload of bricks or lumber one hundred miles as it does a carload of silk or clothing and fails to understand why there is a wide difference in the rates charged. Shippers can readily see why lower rates should be granted on carload lots but some fail to grasp the reasons for any differentiation beyond that point. Unfortunately, as the Interstate Commerce Commission pointed out in its first report published in 1887 it would be practically impossible to determine the cost of carrying each commodity separately. Even if it could be done, to base rates on such costs would narrowly restrict the transportation of articles large in bulk or heavy in weight as compared with their value.

The cost of service, roughly estimated tho far from accurately ascertained, does however have an important influence in setting the lower limits to transportation rates, the upper limits being fixed by the value of the service to the shipper. Between these upper and lower limits the railroads establish their various divisions of class rates and their numerous commodity rates.

3. *Fixed elements in railroad costs.*—A feature in railway operation which is worthy of consideration is the fact that costs are probably less flexible than in other lines of business endeavor. We have already seen that fixed charges are a large and necessarily constant factor in their financial management. It will be seen also that in actual operating expenses some items respond not at all or only slightly to changes in the volume of traffic carried.

The expense of railway operation and maintenance is reckoned at roughly three-fourths of a road's total expenses, the remaining one-fourth coming under the head of fixed charges. The operating expenses fall into five main groups of varying importance: general expenses, traffic expenses, maintenance of way and structures, maintenance of equipment and conducting transportation.

The first and second groups are practically unaffected by any changes in the volume of business transacted. In the group of general expenses are included salaries of officials, clerical expenses in the general office, legal expenses, pensions and similar matters. Traffic expenses include the expenses connected with the maintenance of a traffic department, such as soliciting freight and passenger business, making rates and the like.

The operating expenses grouped as maintenance of way and structures are to a large extent constant. They include such items as repairs and renewals on rails, ties, roadway, bridges and buildings, all of which must be taken care of whether the traffic is light or heavy. These expenses absorb about one-fourth of the operating revenue and nearly two-thirds of them are entirely independent of the traffic carried.

Maintenance of equipment has to do with keeping the locomotives, passenger and freight cars in proper shape to carry on the business of transportation. Much of the expense of conducting this department, probably at least half, is unaffected by the volume of traffic handled. Freight cars whether lightly or heavily loaded are subject to about the same amount of wear and tear. Depreciation charges are also largely independent of the volume of traffic.

Conducting transportation constitutes over one-half of the expense of operation and includes the outlay for fuel and for wages of all employes taking part in train movement. Here again the expense is more independent of the business carried on than would seem probable at first glance. Approximately one-half of the coal burned by a locomotive is independent of the number of cars loaded or the amount of freight hauled. Trains must be run according to schedule and engine and train crews receive the same pay whether they are piloting a "string of empties" over the road or deadheading passenger cars or moving trains heavily loaded with paying freight. Within limits it is possible to secure economies by reducing the number of employes and by running fewer trains, but in the main the expenses of train operation continue irrespective of the amount of business done.

Under these circumstances it will be readily understood that any attempt to apportion to each article transported its exact share of the costs would be utterly futile. Any result obtained would contain so large a proportion of estimated and calculated elements that it would be practically worthless. An eminent English author, W. M. Acworth, is authority for the statement that over a long period nearly one half of the expenses of a railroad are fixed while the remainder depend upon the amount of transportation work done.

Railway managers are not wholly in the dark as to costs. Most railroad expenses, known as joint costs, are chargeable to the costs of transportation as a whole and can not be allocated to any single shipment. It is possible, however, to determine the extra cost involved in moving a trainload of freight and that is the chief concern of the freight traffic manager in deciding whether to accept or reject traffic. It is also possible to segregate the expense of operation as between passenger and freight trains and to allocate the charges for the items under each head.

4. *The influence of cost of service.*—While cost of service is not the dominant element in rate making its influence is none the less potent, and this is recognized by rate-making commissions and railroad men generally. An early decision of the Wisconsin railroad commission held that the railroads must consider the average cost of service, modified by what the traffic will bear, as a factor of rate making. In distributing these costs to the freight carried the commission laid stress upon the fact that many different elements, such as terminal expense, train movement, quantity transported, value, weight and risk of each class of freight, loading, gross tonnage of pay and dead weight, and the difference between local and thru trains, must be considered and due allowance be made for each element. The decision conceded that with so many factors to consider only approximate results could be secured.

It is obvious that the railroads reckon with cost of service as one of the elements in rate making when we reflect that both weight and distance are figured in every rate. The carload is made the standard unit for rate-making purposes, and if the shipper can provide a shipment, properly classified, of a certain minimum weight he is given a carload rating. Shipments of less-than-carload lots are charged proportionately higher. With very few exceptions rates increase with the distance but not proportionately to the distance.

The factor of distance should not be over emphasized, neither should it be disregarded. In the beginnings of railways, rates for given commodities increased in direct proportion to the distance, but at the present time distance is more properly reckoned as a decreasing factor of cost as the haul lengthens. The earlier practice overlooked the fact that certain elements in the cost of handling freight at the terminals and during transportation were the same whether it was hauled twenty miles or a hundred miles. If the distance principle were to be adopted as the sole basis of rate making it would prevent railroads from meeting water competition, from granting low rates on thru traffic and low rates on shipments in carload lots. On the other hand it would be equally incorrect to disregard the distance factor altogether as has been proposed from time to time.

With the application by the Interstate Commerce Commission in August 1920, of the "rule of rate making" as prescribed by the Transportation Act a general rate advance was granted to the railroads. While cost of service still virtually controlled the general level of freight charges, hundreds of individual rates were reduced during the following year by the railroads since the "rule of rate making" did not require each individual rate to cover the cost of service on the shipment to which it applied.

5. *Value of the service.*—Of all the elements which actually enter into the making of rates the value of the service has been considered by the Interstate Commerce Commission as well as by railway officials as the most important. The first report of the Commission states that the use of such a principle in rate making would be fair alike to the country, to the railroad and to the property owners. It would aid the country because it would develop commerce and extend communication. The railroads would profit by it because they would be enabled to build up a big business and the shipper would not be unjustly treated because he would be made to pay in some proportion to benefits received.

In discussing this subject, Albert Fink, a railroad official who some forty years ago made exhaustive studies of railroad tariffs, stated that the relative value of an article at the place from which and to which it is shipped determines what freight charges it can stand. If the charge is made greater than the difference in these values the article can not move. It was necessary therefore, Fink said in effect, to charge some articles less than the full cost of transportation, so that they may move and consequently to charge more than the full cost of transportation on others that are able to bear higher charges.

Strict adherence to this principle would place freight rates and passenger fares on much higher levels. If grain is worth $1.00 a bushel on a Minnesota ranch and will bring $1.65 at Philadelphia the transportation charges could be made nearly equal to the selling price of the grain. Evidently the railroad makes no effort to secure the full difference in price between the two places but to fix the rate so that the maximum amount of business may be secured. The traffic manager keeps a watchful eye upon the volume of traffic and if he finds that it is falling off because rates have been set too high he takes steps to see that they are reduced. In other words railroad officials connected with freight service endeavor to fix rates at what the traffic will bear but this is not to be construed as meaning all the traffic will bear.

The application of this theory has resulted in securing a rapid development of the natural resources, the manufactures and the commerce of the United States. The equitableness of such a standard is beyond all question and was so stated by Judge Cooley, the first chairman of the Interstate Commerce Commission, in the following passage:

> It was very early in the history of railroads perceived that, if these agencies of commerce were to accomplish the greatest practicable good, the charges for the transportation of different articles of freight could not be apportioned

among such articles by reference to the cost of transporting them severally; for this, if the apportionment of cost were possible, would restrict within very narrow limits the commerce in articles whose bulk or weight was large as compared with their value. On the system of apportioning the charges strictly to the cost, some kinds of commerce, which have been very useful to the country, and have tended greatly to bring its different sections into more intimate business and social relations, could never have grown to any considerable magnitude, and in some cases could not have existed at all, for the simple reason that the value at the place of delivery would not equal the purchase price with the transportation added.

The traffic would thus be precluded, because the charge for carriage would be greater than it could bear. On the other hand, the rates for the carriage of articles which within small bulk or weight concentrate great value would on that system of making them be absurdly low when compared to the value of the articles, and perhaps not less so when the comparison was with the value of the service in transporting them. It was, therefore, seen not to be unjust to apportion the whole cost of service among all the articles transported upon a basis that should consider the relative value of the service more than the relative cost of carriage. Such method of apportionment would be best for the country, because it would enlarge commerce and extend communication; it would be best for the railroads, because it would build up a large business; and it would not be unjust to property owners, who would thus be made to pay in some proportion to benefit received. Such a system of rate-making would in principle approximate taxation; the value of the article carried being the most important element in determining what shall be paid upon it.

To take each class of freight by itself, and measure the reasonableness of charges by reference to the cost of transporting that particular class, tho it might seem abstractedly just, would neither be practicable for the carriers nor consistent with the public interest. The public interest is best served when the rates are so apportioned as to encourage the largest practicable exchange of products between different sections of our country and with foreign countries; and this can only be done by making value an important consideration, and by placing upon the higher classes of freight some share of the burden that on a relatively equal apportionment, if service alone were considered, would fall upon those of less value. With this method of arranging tariffs little fault is found, and perhaps none at all by persons who consider the subject from the standpoint of public interest.

6. *"What the traffic will bear" applied to business.*—The theory of what the traffic will bear is applied very generally in business. In the merchandising of goods it is often applied by department stores. Certain commodities in which the element of style is large, which are seasonable in character, or are novelties in which a quick turnover is desired, are priced at a figure sufficiently high to net the store a profit. However, if the goods do not move at the figure set, within a certain designated time, the store manager will see that they are reduced until they are disposed of, even if they have to be sold at less than cost. The so-called basement sales of many large department stores represent the effort to dispose of stock at "what the traffic will bear," after it has been found that it will bear less than was anticipated.

Another illustration of this theory may be found in the amusement business where the theatrical manager sets the price of his orchestra seats so as to enable him to pay a large part of his expenses and make a profit, the price of balcony seats to yield a smaller return, and the prices of gallery seats merely to pay operating expenses. When an unusual demand for seats is caused by the production of a popular play, the occurrence of a holiday or what not, the manager, believing that his audience will be willing to pay more, will frequently raise his rates accordingly.

7. *Adverse criticism on "what traffic will bear" theory.*—What to the railroad man may appear as a fair rate upon a commodity may appear unduly high to the shipper. While the forces of competition have a restraining influence upon the sale of most commodities their influence upon transportation is oftentimes small. A shipper, who is so situated as to be dependent upon one railroad and who is without access to other forms of transportation, may pay what the traffic will bear on his shipments and at the same time be subjected to an unreasonable charge. It is true that this charge will add little to the cost of selling the goods, especially high priced articles, but however small the charge, it is in the nature of a tax, which, in the last analysis, the consumer is called upon to pay. Carried to the limit such a rate or series of rates, over a long period, may prove to be a handicap upon an industry, or even destroy it.

8. *Value of the commodity.*—Closely associated with the value of the service rendered and not always clearly distinguishable from it in the making of rates is the value of the article which is being transported. Formerly, this was considered the most important element by the Interstate Commerce Commission and

in its second annual report (1888) the Commission states that "the value of the article carried is the most important element in determining what shall be paid on it." The Commission did not consider this the only element in arriving at the value of the service but merely the most important one.

While this factor undoubtedly must receive attention in rate making, the fact can not be overlooked that while low priced commodities pay a small return to the railroads this charge may constitute a comparatively large percentage of their selling price. On the other hand articles high in value pay a high freight rate but a comparatively low percentage of their selling price. To take a hypothetical case, coal which may cost $8 at the pit's mouth may be worth $10 in the dealers' bins, one thousand miles away, the transportation having added 20 per cent to its value. A carload of clothing may be valued at $10,000 and transportation from Chicago to New York may have added only slightly to its value. Yet a 2 per cent tariff on the clothing would net the railroad $200 while for hauling a carload of coal over nearly the same distance the railroad would make only $4. The transportation of the coal has added a far greater percentage to its value than in the case of clothing altho it is manifestly impossible to fix the freight rates with this in view.

Generally speaking, the consideration of value of the article is important in rates because it tends to place the higher rates on those best able to bear it.

Luxuries and articles of high value are thus given high rates, staple goods lower rates, and raw materials for manufacture the lowest rates of all. Every rate should be placed high enough so as to make the commodity carried contribute something to net earnings leaving to the higher rates the burden of making up the deficiencies.

9. *Physical valuation of railroads.*—An important subsidiary element in the discussion of rates has been the physical valuation of railroads. In times past much of the arraignment of the railroads has been based on the premise that their rates were constructed to give a profit upon inflated values. Conceding that any enterprise must in order to live make a profit upon its legitimate investment, those who opposed the railroads contended that the latter had grossly exaggerated the value of their property, and that lower rates would give an adequate profit upon all that was ever really invested by the roads. To get at the bottom of this matter, Congress, in 1913, called upon the Interstate Commerce Commission to undertake the stupendous task of arriving at a physical valuation of the railroads of the United States. This task is now rapidly approaching completion, the field work having been finished in all districts but the East.

Under the Transportation Act of 1920 the Commission is called upon to determine and publish what shall be a fair return upon the aggregate property value of the railroads, giving due consideration "to the transportation needs of the country and the necessity (under honest, efficient and economical management of existing transportation facilities) of enlarging such facilities in order to provide the people of the United States with adequate transportation." Until the Commission had reached its conclusions and for the two year period which ended March 1, 1922, the Commission was instructed by law to consider a fair return as 5½ per cent upon the value of railroad property and was at liberty to add ½ of one per cent for improvements and betterments.

The effect physical valuation will have on rates will depend in large measure upon whether the railroads are overcapitalized. Present indications are that this is not the case. Mr. Prouty who had charge of this work for the Commission was of the opinion that the rate established by one road between two competitive points, as New York and Chicago, would fix the rate for that service for all roads in that territory. If the Commission were to take as the standard the road best situated, having the largest business and the lowest cost of operation and fix the New York-Chicago rates to yield it a 6 per cent return on its value, some competitive roads in that territory might earn less than 6 per cent and others nothing at all.

All roads do not have the same expenses of operation nor the same investments per mile of line. The rate schedules of one railroad that will give it a fair return might not pay the operating expenses of another. However, on the other hand if the Commission in establishing rates between New York and

Chicago would pick the poorest railroad and grant it a 6 per cent return on its investment all the other roads in this territory would reap an undue advantage.

Valuation, while not displacing the necessity of using judgment, as Commission Clements of the Interstate Commerce Commission pointed out, is sound in principle in that it guarantees to the security holders of the railroad a fair return on their investment. And in judging whether rates are reasonable the return which the carrier receives from them, as compared with the investment is always an important consideration with rate reviewing authorities. Moreover, while it is true that capitalization has little, if any, influence upon rates between competitive points, there are a large number of points upon every railroad which are not subject to competition and in the rates from such points the capitalization of the property exerts a strong influence.

10. *Social considerations in rate making.*—In addition to the carrier and the shipper there is a third party to be considered in rate making, the public. The interests of the public are protected by the various state railroad commissions and the Interstate Commerce Commission. It is the province of these rate making or rate regulating bodies to see that the rates are reasonable to the public, fair to the shipper and sufficiently remunerative to the carrier.

The public demands that rates and fares be so fixed as to work for the advancement of society. This would necessitate the shifting of the viewpoint to a consideration of what is best for society and putting in the background all other considerations such as cost or value of the service. For example, it may be best for society that railroads grant a specially low fare to school children or to carry milk to cities at very low rates. But while it may be best for society as a whole that these low fares and rates be granted, the services, so far as the railroad is concerned, may be performed at a loss. Shall the interests of society predominate in these instances or shall services that prove unprofitable be abandoned? A combination of these interests is what is aimed at in the ultimately perfect rate. At the present time all that a state or Federal commission can do in passing upon rates and fares is to consider each one of the many elements entering into rate making, such as we have reviewed, as well as the interests of the three groups affected. Each case in a large measure is peculiar to itself and elements which may strongly affect one rate case may be relatively unimportant in another. For example, rates to one city may be governed largely by competition; in another the element of competition may be almost entirely lacking. In the long run the question of a reasonable rate, which in its largest aspect is a rate that meets the requirement of the carrier, the shipper and the public, is one in which a wise judgment has been exercised by the commission in making its decision. Beyond this it can not go.

REVIEW

Wherein does railroad transportation differ from other forms of business?

Define cost of service and explain how it is regarded by the railroad executive, the general manager and the shipper.

How do railroad costs differ from other costs in business? Into what main groups may they be divided and what are the principal items in each group?

Discuss the elements which go to make up a freight rate.

Show how the theory of "what the traffic will bear" may be applied to other than the railroad business.

What is the purpose of a physical valuation of railroads?

What in your opinion is an ideal freight rate?

CHAPTER IV

COMPETITION AND ITS INFLUENCE UPON RATES

1. *Phases of competition.*—In the fixing of rates the railroads are subject to competition without and within. In the first chapter the various phases of external competition have already been considered. We saw how from every quarter and on every pretext pressure was exerted upon the railroads to influence the rates which they charged for their services. In many cases the railroads are unable to withstand the pressure and doubtless in many cases it is not to their advantage to do so. Business secured under such conditions may not be highly profitable, but it makes a contribution to revenue and may be useful in keeping equipment at work and thus lowering the general costs of operation.

In this chapter we are concerned with the competition that comes from within, that of one carrier with another. The story of competition in railroading parallels that in other branches of business. Pushed to the extreme, competition may seem to give a temporary advantage to the public, but it may so weaken the contending parties that in the end they will be unable to give the public the service it desires.

2. *Effects of unrestricted competition.*—The pe-

riod following the Civil War down to the close of the 19th century showed some illuminating examples of the lengths to which unrestricted competition can go in producing complete demoralization of railroad rates. The section of the United States in which competition raged the fiercest was that between New York in the East and Chicago and St. Louis in the Middle West, commonly known as trunk-line territory. Competition there grew most intense, and resulted in rate wars, as they were called, in periods of depression.

Excessive competition for traffic among the railroads reaching Chicago broke out in 1869 and continued at intervals until 1901. In their attempt to secure the business moving between Chicago and New York the trunk lines at times cut rates so low that the freight was carried at a loss. During the latter part of this period, however, the railroads ceased to compete actively among themselves, but engaged in a struggle with the lake carriers in the endeavor to secure again traffic moving eastward from Chicago.

Minor storm centers in the days of rate wars were found in the transcontinental lines and in southern territory. In 1893 the railroads running to Pacific coast points cut rates until they reached a point at which goods were carried a 3000 mile journey from New York to San Francisco at a rate of 30 cents per hundred pounds. In the South a rate war between southern carriers caused a reduction of rates equal to 66⅔ per cent, the rate on first class freight being reduced from $1.14 to 40 cents per hundred pounds.

During this entire period the railroad rate situation alternated between war and peace. The railroads would endeavor for a time by every means in their power to divert traffic from their rivals and after cutting rates until little or no profit was left in the business they would call a truce. This was usually of short duration and was broken after a time when some railroad was discovered to be endeavoring to secure traffic at rates lower than other carriers were quoting. There was no organization outside of the railroads themselves which could restrain a railroad from rate cutting when it believed another railroad was doing the same thing, and contracts between railroads were lightly regarded at such a time. To abolish this form of discrimination and place all rates on a basis of reasonableness was one of the chief aims of the Interstate Commerce Act of 1887.

3. *Aspects of railway competition.*—In railroad transportation competition assumes many and varied forms, and it is impossible to secure a correct understanding of railroad rates unless the many aspects of competition are given due weight. It is the general belief that competition exists only where railroad lines parallel each other or serve the same cities. These are the simple forms of competition but there are many others far more complex. We may have competition between circuitous and direct routes, between markets, ports, regions and nations, between rail lines and water lines, between imports and ex-

ports and domestic products and many other forms.

The competition of parallel lines is shown in full flower in trunk line territory where a number of roads serve the same districts. The West Shore and the Nickel Plate are conspicuous examples of roads planned for this form of competition. A similar situation is found in the territory between Chicago and Kansas City and in the territory between New York and Philadelphia. In addition to the rail competition among carriers serving the same sections we often have the competition of a rail line and a water line which parallels it as in the case of the New York Central Railroad and the Erie Canal, the Illinois Central and the Mississippi River and the Coast division of the Southern Pacific Railroad and the Pacific Ocean. Where two railroad lines parallel each other the result has usually been that after a disastrous rate war the stronger one absorbs the weaker one or else a pooling agreement is entered into by the railroads by means of which each road secures a certain proportion of the traffic or earnings.

A second aspect of competition is that between different carriers for business for export or import. In this case the trunk lines serving all the Atlantic ports are in competition against carriers serving the Gulf ports or even the Pacific coast. A manufacturer of agricultural implements in Richmond, Indiana who is about to send a shipment of plows to the Argentine is indifferent whether they go all rail to New York and are exported from there or are sent out of New

Orleans or another Gulf port. But the railroads are keenly alive to this business and make an earnest endeavor to secure it.

Closely akin to the competition of carriers serving different sections is the competition of ports. The ports along the Atlantic coast compete with each other, with the Gulf ports and even at times with the Pacific coast ports. The competition is especially severe in export traffic.

In the competition of ports the element of distance is an important factor, especially as between such north Atlantic ports as New York, Philadelphia and Baltimore. On export traffic, however, to Portland via the Grand Trunk railroad, to Boston, to Savannah, to the Gulf, and to the Pacific ports from the Central West the distance factor does not govern so much as the rates by way of New York, Philadelphia and Baltimore. The dominant purpose of export rates from Gulf ports is rate equalization with the basic ports of the north Atlantic. The primary guide controlling export rates is combined rail-ocean charges from the interior to foreign destinations.

The advantages which a port offers in the way of tonnage, depth of channel, loading and unloading facilities, lighterage, trade routes and so on may overcome the disadvantage of distance. For such reasons New York is still the leading port of the United States, altho other ports have the advantage of being closer to the points where the shipments originate.

The multiplicity of routes between important commercial centers is shown by the fact that there are 100 all-rail routes between New York and New Orleans, and that between Chicago and Kansas City the shipper has the choice of seven distinct routes operated by an equal number of carriers. From Boston to Chicago the direct all-rail route is roughly 1,000 miles and yet competition by way of Newport News, a distance 600 miles greater, is effective. Freight consigned from New York to San Francisco may travel all rail a distance of approximately 3,100 miles or go water-rail via New Orleans a distance of 3,500 miles. Fruit from Sacramento Valley to Chicago may travel northward to Seattle and then eastward to Chicago or reach its destination via Los Angeles and El Paso.

4. *Water competition.*—The United States is so situated that its railroads have water competition along its three coasts and a large part of its northern boundary. In addition they have some competition from canals and a small amount of river competition, but this competition of the inland waterways against the railroads is weak and is greatly in need of development of facilities before it can become effective.

Water competition against rail lines is most effective in coastwise service and in lake traffic. This has been long recognized by the railroads in giving seaports, and places within a limited area adjacent to the ports, rates which meet those provided by water lines. With the completion of the Panama Canal, water rates between Atlantic Coast points and points on the Pacific Coast had the effect of lowering the transcontinental rail rates since otherwise the railroads would have been unable to compete against the coastwise lines. Today with the prevailing high transcontinental rail rates an increasing amount of traffic is going by water. Even fruit shipments have been sent from the Pacific Coast to Eastern ports in refrigerated vessels but the great bulk of fruit shipments will probably continue to move eastward by rail because of the reconsignment privilege [1] extended by rail carriers. This gives a fruit shipper a wide option in western and eastern markets whereas if shipments are made vía the Canal his choice is limited to specific eastern markets.

A moment's consideration will show how powerful water competition may become. Shipments destined for the Pacific coast may be sent all rail, all water via the Panama Canal, or by water and rail via New Orleans or Galveston. On grain shipments eastbound there is even wider latitude of choice, thru the routes afforded by the Great Lakes and the St. Lawrence River. Much grain is shipped eastward over lake and rail routes. Dr. McLean of the Canadian Railway Commission points out that grain may travel to the Atlantic seaboard by any one of the following routes: all rail to Boston, New York, Philadelphia, Baltimore and Newport News; rail to Buffalo and thence by Erie Canal and Hudson River to New York; lake to Erie and rail from Erie to Philadelphia or Baltimore; by lake to Canadian lake ports and thence by rail to Montreal, St. John, Portland or Boston. Over all these routes the charges of the lake routes have a dominating influence.

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[1] See Chap. VII.

5. *Railway pools.*—The history of railroads in the past fifty years has been a see-saw between competition and combination under various names and in different forms. Of these one of the first was the railway pool. It has been defined as "an association of railroad companies for the purpose of a proper division of the traffic at competitive points and the maintenance of equitable rates that may be agreed upon."

In general railroad pools fall into two classes, traffic pools and revenue pools. In the former a railroad is guaranteed a certain amount of freight by its competitors in the pool and, if its percentage falls below the allotment agreed upon, tonnage is either diverted to it or an equivalent in money is paid. Such a diversion of traffic is frequently objected to by the shipper altho there is generally enough traffic which may be routed by the carrier to provide the required allotment. In some cases in which traffic pools were formed, the carriers made no endeavor to divert traffic to carriers that lacked their full allotment but provided a money fund from which the necessary payments were made. A revenue pool is an agreement among railroads to guarantee each member of the pool a fixed proportion of the gross or net revenue of the business pooled, making due allowance for the expense of operation. Each railroad retains a fixed amount of its revenue from competitive traffic and turns the rest into the pool which is distributed at specified periods, usually not longer than a year, so that each carrier receives the allotment which has been agreed upon.

The practice of pooling did not prevent the separate roads from securing as large an amount of traffic as possible for themselves. While the amount of traffic which had to be diverted or for which a money payment had to be made was usually small it proved a difficult matter to get the railroads to contribute it. After a railroad had hauled freight it naturally looked on the receipts as belonging to it and was disinclined to give up any part of it to a common fund. While revenue pools reduced rate cutting they tended to create an unhealthy rivalry among the railroads since each railroad endeavored to secure for itself large amounts of traffic which would enable it to claim a larger proportion of the pool another year. Revenue pools are open to the further objection that they provide a subsidy to weak roads as was shown in the payments made annually to the Erie railroad, prior to 1892, as "space rentals" and which really amounted to payments made to keep the Erie from actively soliciting business.

6. *Early pooling agreements.*—While traffic pools were known to exist among New England railroads before 1870 the first traffic pool about which definite information is available was made in 1870 between the Chicago and Northwestern, the Burlington and the

Rock Island for business between Chicago and Omaha. Each road allotted to itself one third of this traffic. For 14 years this agreement helped to secure stability of rates in the territory. This pool was finally merged into the Western Freight Association which was formed in 1884. A similar pool existed for a few years, during and after 1876, fostered by the Southwestern Railway Rate Association for rates on traffic moving between Chicago and St. Louis.

One of the strongest of these early pools was the revenue pool organized in southern territory by Mr. Albert Fink. At first it covered only traffic moving between points in the south but was later extended to eastern cities and western gateways. The pool lasted from 1875 to 1887 when the Interstate Commerce Act required the remodeling of its provisions. Again, in trunk line territory the panic of 1873 and the rate wars led in 1877 to an agreement by the carriers to pool rates on westbound business on a traffic basis. This pooling agreement in 1879 resulted in the formation of a Joint Executive Committee for that territory.

In addition to alloting traffic or calling for money payments the pools were gradually enlarged to include all inter-railway relations. The administrative agency thus created was usually known as a traffic association. Of such associations Professor Johnson says "they fixed the rates on joint and competitive business, laid down rules regarding the solicitation of traffic, took measures to prevent fraud, determined the speed at which the fast passenger trains should be run, decided what kind of tickets should be issued and what privileges should be afforded or denied shippers."

In spite of growing dissatisfaction on the part of the public the pools in various forms continued to exist up to 1887 when the Interstate Commerce Act declared them illegal and forced the traffic associations to abandon any arrangements for dividing traffic. The associations continued, however, to exercise their other functions.

7. *Legislation hostile to combinations.*—Altho pooling often made for low and stabilized rates the public believed that rates under pooling arrangements were increased and that the whole scheme smacked of monopoly. Public opinion became powerful enough to force the passage of laws against pooling in a number of states and to insert a similar provision in the Interstate Commerce Act. Pooling never had legal authority and agreements were enforcible only by threats or fines. The passage of Federal and state laws against the practice had the effect of causing the freight associations, which in every case had been the sponsors of the pooling arrangements, to turn their activities in other directions but not to disband.

By 1887 associations had been organized in every section of the country for the purpose of controlling the traffic arrangements of their respective districts. For a time their efforts to prevent rate cutting were successful but after the panic of 1893 the effort to get business caused many of the weaker roads to resort to various forms of discrimination. From 1893 to 1897 a number of roads became bankrupt and even the stronger ones, by informally adopting common policies which gave rise to the expression "gentlemen's agreements" and by other secret traffic arrangements, succeeded in accomplishing what the law made illegal. This was facilitated by the change in the general attitude toward the practice. The railroads had always claimed that pooling or some similar practice was necessary for the regulation of the traffic between roads. Legislators modified their views on pooling and joined the roads in advocating its continuance under effective government regulation. It was recognized that altho pooling, as we have seen, made for low and stabilized rates in the majority of cases, in other cases it caused high rates or prevented their reduction. This fault it was believed could be corrected by restrictive legislation which would protect the shipper sufficiently and yet allow the railroads to secure the benefits of cooperation.

8. *Present day traffic associations.*—Traffic associations still play a very important part in rate making and no individual rate adjustment on competitive traffic is made without action being taken by the proper association. During the period of Federal control the Railroad Administration did away with these associations but when the railroads again passed into private hands they resumed their activities. While each railroad still makes its own rates on non-

competitive traffic, wherever competition enters the railroads have found it a wise policy to cooperate thru their association.

There are a number of types of these associations. The largest and most important cover well-defined areas of territory and dominate all individual rate adjustments and rate structures within their respective territories. Associations of this nature are the New England Freight Association, Trunk Line Association and Central Freight Association. Within narrower limits of territory we find a second group of freight traffic associations whose duties are similar to those of the larger associations but confined to more restricted areas. Such associations as the North Pacific Coast Freight Bureau and the Texas Tariff Bureau are associations in this class.

Many cities have local traffic associations which supervise rates affecting the rail traffic of the community. Buffalo and Chicago are among the cities having associations of this nature.

Certain associations have been organized to deal with special forms of traffic such as the Illinois-Indiana Coal and Coke Committee, Chicago Switching Committee and the Bureau for Safe Transportation of Explosives.

9. *Results of consolidation.*—The decade 1890-1900 was notable for a large amount of consolidation in the industrial world. The railroads proved to be no exception to other industries in this respect and while the court decision in the Trans Missouri Freight

Association case called a halt on pooling arrangements, the nature of the railroad business made it necessary for the roads to confer on many matters involving traffic arrangements, rates, fares and classifications. Between the years 1897 and the close of the century railroad consolidation proceeded at a pace which equalled if not outstripped the consolidation taking place in other fields. At the close of this period instead of a large number of independent lines we find a comparatively small number of strongly entrenched railroad systems which had bought, leased, absorbed, controlled thru stock ownership, or thru representation on the board of directors, a large number of smaller connecting or competing lines. In fact so far did the pendulum swing in this direction that one of the most successful of the railroad magnates of that day, the late E. H. Harriman, who had a controlling interest in the Illinois Central and Union Pacific, testified on the stand before the Interstate Commerce Commission in 1906, that his policy contemplated the acquisition of the Sante Fé, the Northern Pacific, the Great Northern and other roads so that he might finally control railroads on both the Atlantic and Pacific coasts.

This consolidation resulted in placing in a few hands the administration of great railroad systems thru the control of the finances of these properties. The public feared that too much power was being concentrated in a small New York banking group and that this power might easily spread until it embraced in its final stages a large part of the manufacturing and commercial interests of the country.

A more tangible result of railroad consolidations was seen in the rapid rise of freight rates. Under the pooling agreements which existed prior to 1897 no attempt was made to limit the competition of railroads for business. On the contrary the agreements rather stimulated it. Consolidation had the opposite effect. While a general advance in prices was also taking place during this period and would probably have had some effect on rates and fares, there is little doubt consolidation intensified this tendency and that rates rose to a higher level than they otherwise would have reached.

10. *The law and competition.*—If railroads were left to an unrestrained competition for business, rates might be cut to a point where there would be little or no profit in railroad transportation. Railroads could not continue long to do business at rates which yielded little over the costs of furnishing the service. At the same time every railroad endeavors to enlarge its business because an increase in business does not add correspondingly to its costs and gives more than a proportionate return. We have seen, however, that unrestricted competition among railroads leads not only to dissatisfaction on the part of the shipper but also to disruption of the railroad itself.

There can be no doubt that the railroads had learned this lesson when we consider the various devices by which they sought to escape the workings of competition. If these devices held rate competition in check they did not suppress it, and it was ever ready to break out whenever any of the roads thought it to their advantage, openly or covertly, to disregard the agreements they had entered into. On the other hand when these agreements were effective they emphasized the fact that railroad transportation is a quasi-monopoly which at times threatens to become a complete monopoly. Unless effectively controlled and regulated it has possibilities of becoming a menace to the public. This is the root from which has sprung the wide-reaching supervision by government authority to which the railroads are now subject. It is the purpose of such regulation to remove the sting of monopoly and to do so it has substituted public control for both combination and competition in the making of rates.

The law has not abolished competition among the railroads; it has transformed it. It has become a competition of service rather than of rates. With comparative fixity and equality of rates the road will obviously prosper most which is able to secure the largest volume of business and handle it most efficiently. The railroads solicit business actively, employing large numbers of freight solicitors and commercial agents in this work. These agents, however, in endeavoring to secure business lay stress upon the service feature which their roads offer and make no attempt to secure business thru rate cutting or other discriminatory practices.

11. *Pooling made legal*—As a device for securing uniform rates pooling is no longer necessary, but as an effective means of railroad administration it has been advocated for a number of years by legislators, railroad officials and shippers. It was not until the Transportation Act of 1920 became effective that pooling was legalized. As the law now stands pooling of traffic or earnings is authorized provided that the pool established is in the interests of better service, economy of operation, and most important of all, not in restraint of competition. Pools may be established on petition from the carriers or the Commission's own initiative. After hearings have been held, the Commission, with the concurrence of the carriers involved, may arrange the terms and conditions under which the traffic or earnings shall be pooled. The act provides that these terms and conditions shall be just and reasonable but leaves it to the Commission to determine what they shall be.

The New England railroads foreseeing a serious deficit in 1921 appealed to the Commission for relief, claiming among other things that the traffic diverted to them by the western lines was not sufficient and further that a large amount of traffic on New England railroads was unprofitable short-haul traffic. The trunk lines and Central Freight Association offered a pool of $15,000,000, or not over $1,250,000 monthly, as a temporary expedient lasting into 1922, when it was hoped that these railroads would be in a better condition financially. The contributions to the pool were to be made on the basis of a fixed percentage of gross receipts. Each trunk line's proportion was to be approximately 10 per cent of the total freight and switching revenues, excluding traffic on which eastern district rate advances did not apply. This proposal was not accepted by the New England roads and the Commission again asked that these roads and their western connections attempt a settlement on a basis acceptable to all parties concerned.

12. *The law on consolidation.*—The Transportation Act of 1920 dealt very liberally with consolidation of railroad properties. It called upon the Commission to establish a plan of consolidation whereby the railroads would be divided into a small number of systems. In such division competition is to be preserved and so far as possible the existing routes preserved. The law endeavors to have the competitive railroad systems so arranged that transportation costs shall be the same, the rates uniform, and yielding the same rate of return upon all the properties.

While the Act provides for the consolidation of railroad properties it does not make it compulsory. It would be manifestly unjust to require the strong roads in a territory to take the weaker roads under their wing. While this action might have been taken in times past when railway consolidations were more popular and when transportation was in a more flourishing condition, the state of even the strongest railroads in recent years necessitates that they refrain from taking on any unprofitable connections. The railroads, on their part showed no inclination to propose consolidations of any sort. In 1922, the Interstate Commerce Commission proposed a tentative plan for the consolidation of the railroads of the country into nineteen systems.

13. *Competition at terminals prevented.*—Terminals have always been the keys to modern railway systems, for without adequate and well situated terminals the most extensive railroads would prove useless. For this reason railroads have always jealously guarded their terminals, and in the large cities have oftentimes endeavored to prevent rival railroads either from securing terminal facilities in a city or forced them to accept very undesirable locations. As a case in point might be instanced the Wabash terminal at Pittsburgh and the Baltimore and Ohio terminal at Philadelphia.

The Transportation Act endeavors to change this competition between roads for terminals and states that if it is in the public interest and will not affect adversely the business of the railroad owning the terminal, the Commission may require the use of it by another carrier under such terms and conditions as the railroads may settle among themselves. If the railroads can not agree upon the compensation the Commission shall determine it in condemnation proceedings. The compensation shall be paid in advance. If the carrier receiving the compensation is not satisfied with it or if the compensation is not promptly paid the carrier may bring suit against the other carrier.

REVIEW

Describe some forms of railway competition.

In what forms of traffic is water competition against railroads the most effective? Give an illustration.

What is a railway pool? How are traffic pools operated? What have been the objections to a revenue pool?

How were pooling agreements enforced? What is the attitude on pooling at the present time?

Trace the history of traffic associations and what functions do they now perform?

What effect has the law had on railroad competition?

How does the Transportation Act of 1920 regard pooling?

CHAPTER V

CLASSIFICATIONS AND CLASS RATES

1. *Need of classification.*—We have already seen that one of the factors which enters into railway freight rates is the character of the article transported. If for every station and every distance and every possible article a separate and distinct rate were to be made, the task of determining rates would be of appalling magnitude. The labor is much curtailed by dividing up the articles to be transported into classes and establishing the rates for the latter instead of for each individual article.

But it must not be thought that the task of assigning the various objects of internal commerce is a light one. There are thousands of articles to be considered and each of them must be assigned to some definite class except where the railroad elects to exempt it from the classification. It may be pointed out that not only are there a great many different articles but that for the purposes of classification further differences arise from the nature of the packing and other incidents connected with the shipment. The many elements which must be considered in making a classification are well shown by an excerpt taken from an Interstate Commerce Report of 1897:

They (the classification committee) would take into account whether commodities were crude, rough or finished; liquid or dry; knocked down or set up; loose or in bulk; nested or boxed, or otherwise packed; if vegetables, whether green or dry; desiccated or evaporated; the market value and shipper's representation as to their character; the cost of service; length and duration of haul; the season and manner of shipment; the space occupied and weight; whether in carload or less-than-carload lots; the volume of annual shipments to be expected; the sort of car required, whether flat, gondola, box, tank or special; whether ice or heat must be furnished; the speed of trains necessary for perishable or other "rush" goods; the risk of handling, either to the goods themselves or other property; the weights, actual and estimated; the carrier's risk and owner's release from damage or loss.

A further evidence of the complexity of the problem may be found in the fact that the Consolidated Freight Classification, the official publication used by the railroads for this purpose, devotes some 392 pages to the classifying in alphabetical order of articles of every description, from abrasives to zylonite boxes. The proper classes are given in parallel columns for each of the three classifications into which the United States has been divided—the Official, Southern and Western.

When a local freight agent or shipper wants to find a class rate he turns first to the Consolidated Freight Classification. There he finds the class in which the article has been placed. He turns next to the freight tariff of the railroad where he secures the rate per hundred pounds on shipments of this class from the point of origin to destination. Both publications are necessary for classified freight—the classification book to show the proper grouping of the article and the freight tariff to give the charges upon it.

If, for any reason, a railroad has taken a commodity out of the classification and given it what is known as a commodity rate the shipper has only to consult the railroad's commodity tariffs where all commodity rates are found. The railroad may also make "exceptions to the classification" of certain commodities and file the exception with the Commission. This amounts to a reclassification of the article for the purposes of the particular railroad. The railroad then charges the rate for the class to which it has transferred the article and not that for the class specified by the classification for the entire territory.

2. *Development of classification.*—Classification began in the days of wagon freight, when articles were classified as light and heavy freight and charged by the cubic foot for the former and by the hundred pounds for the latter. The early railroad classifications were simply broad groupings of freights into three or four classes with a few items in each. In many cases the tariff and the classification were combined. An example of the grouping adopted at that time is seen in the classification of the Boston and Worcester Railroad in 1847:

Coal, iron, lumber and manure	4 cents per ton mile

Heavy merchandise, *e. g.*, sugar, salt, butter	6 cents per ton mile
Groceries and dry goods	6 to 8 cents per ton mile
Light and bulky merchandise	6 to 10 cents per ton mile

As railroad lines multiplied in number and freight increased in volume and diversity of products, classifications increased so that shortly before the formation of the Interstate Commerce Commission in 1887 it was almost impossible for a shipper to determine what his freight rates would be when compared with those of his competitors. The number of classifications had so increased by this time that there were said to be 130 classifications in trunk line territory alone.

But the railroads were already at work to remove the confusion which resulted from this situation. Early in 1887 the railroads in trunk line territory on report of a classification committee, which became a standing body, adopted a common classification and within two years they were followed by the southern and western roads. These three classifications known as Official, Southern and Western are in force today in their respective territories. All attempts to secure a uniform classification for all the United States—and there have been several efforts of this nature—have failed thru the insistence of the roads that the character of business done was essentially dissimilar in the three sections of the country, and that uniformity had already gone as far as it was practical.

3. *Consolidated classification.*—The adoption of a consolidated classification came as a result of the policy adopted by the Railroad Administration during the World War to centralize the administration of the railroads of the United States. The Railroad Administration requested the representatives of the three classification committees and of the uniform classification committee to prepare a consolidated classification. This was undertaken and the work finished on June 27, 1918. Preparations were then made to submit the classifications to shippers and other interested persons. Hearings were given in a number of the principal cities during August and September, 1918 when shippers, representatives of commercial organizations and others expressed their views on the proposed changes in the "classifications, descriptions, rules, regulations, ratings and minimum weights in the Official, Southern and Western classifications."

The Consolidated Freight Classification when completed embraced 11,107 less-than-carload (L. C. L.) ratings and 4916 carload (C. L.) ratings and became effective shortly before the close of the year 1919. In April, 1921 a revised volume known as Consolidated Freight Classification, Number 2, became effective. Besides giving a classification of every commodity for each of the three classification territories, the book contains general rules and regulations on shipping, copies of bills of lading, live stock forms, rules for packing and for the transportation of explosives, etc.

Each of the three classifications as embodied in the Consolidated Freight Classification have points of difference in the number of classes and ratings. In the Official classification there are six numbered classes, two rules and 7 multiples of the first class. Rule 25 includes articles rated at 15 per cent less than second class and Rule 26, articles rated at 20 per cent below third class. Including the articles rated as 1¼, 1½, 2½, 3, or 4 times first class this classification has 15 classes.

In Southern classification there are 6 numbered classes, 4 lettered classes and 7 multiples of the first class. In Western classification there are 5 numbered and 5 lettered classes besides the multiples of the first class as found in the other classifications.

The scope and arrangement of the Consolidated Freight Classification can best be appreciated by an example, which is given in the following table showing a number of commodities, as they appear.

Item	Articles	Ratings Official	Southern	Western
1.	FLINTSTONE:			
2.	GROUND:			
	In bags, barrels or boxes, L. C. L.	4	5	2

In packages named, C. L., min. wt. 40,000 lbs.	6	A	5
3. Linings (silex linings):			
In boxes or crates, L. C. L.,	4	5	4
Loose or in packages, C. L. min. wt. 40,000 lbs.	6	A	D
4. Pebbles:			
In bags, barrels or boxes, L. C. L.	4	5	4
Loose or in packages, C. L., min. wt. 40,000 lbs.	6	Cement rates	D
5. Floats:			
6. Net or Seine:			
7. Cork, in bags, barrels, boxes, bundles, or crates. L. C. L.	1	1	1
8. Wooden:			
In bags or bundles	3	2	2
In barrels, boxes or crates	3	3	3
9. Pageantry:			
Loose, L. C. L.	D1	D1	D1
Loose, C. L., min. wt. 10,000 lbs., subject to Rule 34	1	4	2
10. Flocks:			
11. Cotton:			
In bags, L. C. L.	2	2	2
In bales not machine pressed, L. C. L.	2	2	2
In bags or in bales not			

machine pressed, C. L., min. wt. 12,000 lbs. subject to Rule 34 . . .	3	2	3
In machine pressed bales, L. C. L.	4	4	3
In machine pressed bales C. L. min., wt. 24,000 lbs., subject to Rule 34	5	4	C
12 Wool:			
In bags, L. C. L.	2	2	2
In bales not machine pressed, L. C. L.	2	2	2
In bags or in bales not machine pressed, C. L., min. wt. 12,000 lbs., subject to Rule 34 . . .	3	2	3
In machine pressed bales L. C. L.	3	4	3
In machine pressed bales C. L., min. wt. 24,000 lbs., subject to Rule 34	4	4	C

4. *Differences in classifications.*—The classification given to an article in one territory may differ from that assigned to it in another. For example, raw cotton which is the leading agricultural product of the South travels thru Southern classification territory in carload lots as sixth class, in Official classification territory as fourth class and in Western as third class. On the other hand, iron ore crude, in bulk, C. L., which is moved in considerable quantities

in the West is rated there at D class, as class A in Southern classification and as Class 6 in Official classification.

In connection with carload ratings carload minimum rates are always indicated. These carload minimums are not the same for the three classifications and they vary greatly according to the nature of the commodity. When a shipment is in excess of a carload it is charged for at actual weight.

With some commodities, such as some articles of furniture and others marked "subject to Rule 34," the carload minimum varies according to the length of car used. For articles subject to this rule the stated carload minimum applies only to cars not exceeding 36 feet, 6 inches in length. For larger cars the minimum increases according to a table given in Rule 34.

A shipper may specify the length of the car he desires but if the railroad can not supply a car of that length, it supplies whatever equipment it has available, the agent specifying on the way-bill the kind of car ordered, the kind furnished and the date. The minimum weight fixed for the shipper is that of the car ordered, except when the car is loaded to capacity in which case the minimum weight is that of the car furnished.

For some commodities carload ratings are not given, the same rate applying on all shipments, whatever the quantity. For example, quinces in packages or in bulk may be shipped in carload lots in Official and Western classification territory but have no carload rating in Southern classification.[1] In barrels, boxes or crates, L. C. L. they are rated second class in Official and in Southern classification territory, and first class in Western classification territory.

5. *How classifications are made.*—The Consolidated Freight Classification is published by a Consolidated Classification Committee composed of the chairmen of the Official, Southern and Western Classification Committees. The actual work of classification is done by the three committees—the Official at New York, the Southern at Atlanta and the Western at Chicago. These committees hold public hearings on proposed changes at which shippers are given an opportunity to address the committees. Any changes in classification which the committee proposes to make are announced in printed dockets which are issued before the meetings take place. If a shipper or commercial organization desires a change in classification the request is made to the chairman of the classification committee in the territory in which the change is requested. The ratings assigned to the various articles by these committees are brought together in the Consolidated Freight Classification by the committee of that name.

6. *Principles of classification.*—The economic prin-

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[1] When no distinction is made between L. C. L. and C. L. shipments thruout all classifications this is indicated by the omission of these letters. When the distinction is lacking in the Southern classifications, this is indicated by prefixing the symbol x (any quantity) before the class given for L. C. L. shipments.

ciples underlying a railroad classification is that railroads carry most articles on the basis of what the traffic will bear. While the cost of the service to the carrier can not be neglected since a carrier must necessarily charge more for commodities which cost more to haul than for others, still in the long run a rate on a commodity is so fixed as to bring in the largest amount of business compatible with that charge. Freight classifications are by no means fixed and have been described as merely "the rule-of-thumb" experience of the railroad in adjusting freight rates on different commodities to suit the commercial conditions which happen to prevail at the time.

In speaking of classifications former Commissioner Clark of the Interstate Commerce Commission called them only a grouping at best. "Classification is not an exact science nor may the rating of a particular article be determined alone by the yardstick, the scale and the dollar. The volume and desirability of the traffic, the hazard of carriage and the probability of misrepresentation of the article, are large factors of prime importance in classification."

In the several classifications there are apparently no fixed relations between the rates for different classes. The rate from A to B on first class freight may be 15 per cent above that of second class and second class 20 per cent above that of third class. Yet from A to C the rate on first class freight may be 20 per cent above that of second class and the second class 25 per cent above that of third class.

While the direction of traffic is not considered in classifications it nevertheless has an influence in the securing of commodity rates and the exceptions from classifications. In making low commodity rates to the Pacific coast the transcontinental roads have held that this practice was justified because the railroads had a lighter train movement in that direction. Other factors that may be mentioned as having an influence upon classifications are the requirements of a certain section, the commodities offered for transportation, the character of the country, the equipment of the railroad, etc.

7. *Carload and less-than-carload ratings.*—In addition to dividing all commodities into various classes, the classification book makes a distinction between freight shipped in carload lots and in less-than-carload lots. Many articles when shipped by carloads are given a lower classification and consequently a lower rate. The justice of this is readily apparent when it is considered that a shipper who ships in carloads causes the railroad smaller costs in performing the service and is likely to provide it with more business than the shipper of small quantities. Experience shows that it is difficult to load and dispatch cars without having the proportion of paying freight to dead-weight less for L. C. L. shipments than for carloads, while the cost of loading and unloading, billing, collecting and adjusting any damage which may occur are all comparatively less.

It is not so easy to determine the relation that shall obtain between carloads and less-than-carloads so far as "the man who pays the freight" is concerned. A large merchant buying in carload lots is, as a result, oftentimes able to undersell his small competitor and even at times to drive him out of business. A manufacturer selling direct to the retailer in less-than-carload lots is placed at a disadvantage in competing against the jobber who gets his goods in carloads and then distributes them to the retailer at local rates. As the railroad finds carload business more profitable than less-than-carload, it is not likely to abandon it, even tho an apparent hardship is thereby placed upon the small shipper.

Rule 27, section 1 of the Consolidated Freight Classification provides that carload freight shall be loaded by the shipper and unloaded by the consignee. While this is the general practice there are cases in which the railroad performs these services. Where the work of unloading carload freight is done by the railroads it furnishes an exception to this practice made by the classification. Railroads entering New York perform this service in order to secure a freer use of their tracks.

In a statement on car loading by the Wisconsin Railroad Commission a few years ago the following occurs:

> "In one of the principal carriers in the Western Classification territory, the average terminal cost per cwt. amounts to about 2.3 cents, when the loading amounts to 17 tons per car and to almost 5.8 cents when the loading

amounts to 6 tons per car, while the average cost of moving the freight between the stations amounts to about 0.26 mills per cwt. when the car is loaded with 17 tons to about 0.44 mills per cwt. when it is loaded with 6 tons of freight. On these bases, for a haul of two hundred miles, there is a difference in favor of the carload traffic that amounts to about 7 cents per cwt. We feel quite justified in saying that the less-than-carload traffic is relatively less profitable to the carriers than the carload traffic, and that the higher rates for the former are more than offset by the greater cost of handling it."

A classification made some years ago shows C. L. ratings to be more frequent in Official Classification territory than in Southern or Western where traffic is lighter. While the number of carload ratings in Official Classification territory is increasing it is not doing so at as rapid a rate as the less-than-carload ratings. Classification of less-than-carload and carload ratings for each classification territory are as follows:

Classification	Date	Ratings Total	L.C.L. Number	Per Cent	C.L. Number	Per Cent
Southern	1909	4,206	3,503	83.3	703	16.7
Western	1909	7,419	5,729	77.3	1,690	22.7
Official	1909	10,087	5,852	58.1	4,235	41.9
Official	1920	16,023	11,107	69.3	4,916	30.7

In order for a shipper to obtain a carload rating he must pay for a certain minimum weight. The minimum shipping weights for some articles vary according to the length of the car. In some cases if a shipment exceeds a carload the amount in excess is taken into another car at carload rates.

In establishing carload minima, consideration is given to the nature of the commodity—whether it is bulky, like ore, or compact in form, like boxed goods. The attitude taken by the railroads in regard to minimum rates is well set forth by the following quotation taken from a statement made by the Chairman of the Canadian Freight Association:

> "All articles are provided with a less-than-carload rating, but only those which are generally, or to some extent, forwarded in straight carload quantities are given the carload rating. In order to entitle a shipper to the lower carload rating when it is provided in the classification, the rules require that a full straight carload, subject to certain minimum weights which are designed to produce adequate per car revenue, be forwarded by one shipper from one station on one day to one consignee and destination.
>
> "Where the character of the freight, size of the packages, method of packing, weight of the goods, strength or fragility, vary so greatly, it is impossible to fix by rule a minimum weight which will in all cases exactly correspond with (and not in some cases exceed) the actual quantity which can conveniently be put in a car. It is impracticable by rule to confer the benefit of the carload rate without the use of a minimum weight. In the case of heavy, coarse freight, the shipping public finds no difficulty in loading up to and even in excess of the minimum weight. There are no commercial transactions which interfere with this being complied with. In the case of light, bulky freight, the weight-carrying capacity of the car is disregarded, and the loading capacity generally determines the minimum weight, but always subject to its application resulting in a fair per car revenue. This is essential in order to permit the necessity of hauling a lightly loaded car and to obtain economy in the use of equipment and yard facilities. A less-than-carload consignment is charged for its actual weight at the higher less-than-carload rate, unless the total charge exceeds the charge based upon the carload minimum weight and carload rate, in which

event the lower charge governs. At no time does a charge on a less-than-carload lot exceed the charge for a carload of the same class."

8. *Mixing privileges.*—In order to enable the shipper to secure the lower rates which come from shipping in carload lots and yet ship a number of different commodities the railroads grant what is known as the mixing privilege. This is granted in all classification territories under Rule 10 of the Consolidated Freight Classification. This rule provides for the mixing of carload freight according to various combinations and various alternatives.

The first section of the rule provides for the shipment of various articles to one consignee at one destination in carloads, the whole carload taking the carload rate per 100 pounds of the highest classed article in the car, based on the carload minimum weight of the article having the highest minimum. It is applicable to Official classification territory. The second section is similar to the first and applies in Southern and Western classification territory. The section does not apply to commodity rates save with two exceptions in Southern Classification.

A third section of the rule provides for a rate calculation as if the articles comprising the mixed carload were shipped in two or more carloads. The articles in the mixed carload under this rule move forward in one car, but are treated as two or more carloads for the purpose of computing the mixed carload rate. Charges in this case are also based on the carload rate which applies to the highest classed article and the highest carload minimum weights.

The following instance will illustrate this principle:

Class	Weight Shipped	Rate Cents	Minimum C. L. Rate
3	15,000	50	20,000
4	4,000	40	20,000
6	10,000	20	36,000

It seems that this mixed car would take the highest rate and the highest minimum weight, that is 36,000 pounds at 50 cents a pound, or $180. If, however, we ship the 19,000 pounds which constitute the shipment in the third and fourth classes on a minimum carload rate of 20,000 pounds at 50 cents, at third class, we will get a rate of $100 for the combined classes, that is 20,000 pounds at 50 cents a pound, or $100. The 10,000 pounds of freight in the sixth class could be shipped on a basis of 36,000 pounds minimum at 20 cents a pound or at a cost of $72. Hence in computing the rate under this section one part of this mixed carload moves at $100 and the other at $72, a total of $172 which is $8 cheaper than the rate when computed under section 1 or 2 of Rule 10.

The final section makes provision for a shipment to be made in part on a carload basis and in part on a less-than-carload basis. The section states that when the total charge is less on a basis of carload rates and minimum carload weights for one or more articles in the shipment, and on a basis of actual or authorized estimated weights, at less-than-carload rates for other articles, the shipment will be charged for at these rates. In other words one or more articles in the car may be shipped at carload rates computed on the basis of the minimum carload weights of such article or articles, or on their actual or estimated weights, if in excess of the minimum weight. The rest of the articles in the car may be shipped at L. C. L. rates on their actual or estimated weights.

A carload mixture might be made up as follows:

Actual Weight	Carload Minimum	C. L.	L. C. L
20,000	30,000	15	25
10,000	35,000	20	25
5,000	35,000	25	30
5,000	30,000	20	25

Under section 4 the rate could be computed as follows:

30,000 lbs. at 15 cents	$45.00
10,000 " " 25 "	25.00
5,000 " " 30 "	15.00
5,000 " " 25 "	12.50
	$97.50

The first article is carried at the carload rate on its minimum carload weight thereby effecting an economy of $5 over the L. C. L. rate on the actual weight. The other articles are carried at L. C. L. rates according to their actual weights. If this gives the shipper a lower rate than can be computed under other sections of Rule 10, he is entitled to it.

In addition to these methods of computing a carload rate, Rule 15 of the Consolidated Freight Classification prescribes that "the charges on a car fully loaded must not exceed the charge for the same lot of freight if taken as a less-than-carload shipment." Thus, if a car is fully loaded the L. C. L. rates may be applied to the actual weight of each article and if this turns out to be lower than any rate quoted under Rule 10, it applies.

It was formerly the practice of the Western and Southern classification to allow mixing only for specially designated articles. Official classification territory officials attempted to limit the mixing privilege by providing that the carload rate could only be applied when all the merchandise in the car was owned by a single individual. This meant the elimination of the freight forwarder. The Interstate Commerce Commission held that the railroad could not look beyond the physical incidents of transportation to the ownership of the goods and upheld the forwarders in their claim. The opinion of the Commission was upheld by the Supreme Court (220 U. S., 235 (1911), 14 I. C. C. 422, 437, (1908)). This decision made permanent the position of the freight forwarder. He can assemble a number of shipments, secure a carload rate, forward them to his agent at destination who distributes the shipments to the respective consignees.

9. *Exceptions to the classification.*—The railroads do not care to entrust to a classification committee the making of all their classifications and have reserved the right to make exceptions to the list of clas-

sified articles. It might be considered advisable by the committee to give certain commodities a higher rating for the territory as a whole than a railroad operating in that territory would sanction. Each railroad is naturally the best judge of its own traffic and may grant "exceptions to the classification" on any article it sees fit. A carrier may also refuse to accept the minimum weight on a classified article, as established by the committee, and raise the minimum to a higher figure.

10. *State classifications.*—In Iowa, Florida, Georgia, Louisiana, Texas, Virginia and a few other states, classifications are used for traffic within the state. These classifications are made by State Railroad or Corporation Commissions, and while in a general way conforming to the ratings of the Consolidated Classification have certain modifications which are designed to meet the needs of state localities. The classifications have application to traffic moving between points within the states named. In some exceptional cases in which competition enters, that is, where traffic is handled between points by an interstate route, it has necessitated the adoption by such interstate route of the interstate classification to the extent that competition prevails.

In Louisiana and North and South Carolina the state railroad commissions prescribe exceptions to the Southern classification from time to time, on certain articles. These exceptions are published to apply on traffic moving within these states. The exceptions, however, are not large enough to be published in volume form as a freight classification.

REVIEW

What is the purpose of a freight classification? How is it applied?

Name some objections made by the railroads to a uniform classification.

How did a consolidated freight classification come to be adopted and what advantages does it offer?

How are changes in classifications made?

Why are shippers of carload lots granted lower rates than shippers of less-than-carloads?

What is the advantage which the shipper derives from the mixing privilege? Give an illustration.

What is an "exception" to the classification?

CHAPTER VI

RATES AND TARIFFS

1. *Kinds of rates.*—The previous chapters have introduced to us the two classes of freight rates (class rates and commodity rates) which depend upon the character of the goods to be transported. There are other distinctions in rates some of which grow out of the purpose of the shipment, distinguishing between purely domestic rates and export and import rates, and some of which depend upon whether the shipment is made over a single line or over two or more lines.

All freight rates are printed in tariffs issued by the railroads. While most of the railroad tariffs are concerned with freight charges there are others issued which deal with special services such as switching, milling-in-transit, fabrication-in-transit, ore sampling, stock feeding, refrigeration, ferry service, etc.

Freight tariffs fall into two general classes, local and joint. The former apply to freight moving between points on the lines of a single road while joint tariffs apply to traffic moving over two or more lines by agreement between the carriers participating in the haul. Local and joint tariffs may contain both class and commodity rates. Certain commodities, such as coal and grain, move on commodity rates over all rail lines, while others may be granted commodity rates on some lines and given class rates on others.

Where no joint rates as above described have been established and published, interline traffic moves on combination rates. The simplest of these combinations is when local rates for distinct portions of the haul are added together. In other cases the combination rate is obtained by adding a joint rate, usually for the larger part of the haul and a local rate or local rates for the remainder. In some cases the combination is that of a joint rate and a proportional rate. The latter is a rate which is sometimes used when a haul is part of a larger haul, the rest of which is covered by a local or joint rate. It is never used for traffic originating within the haul itself, to which local rates apply. Since its amount is proportional to that of the rate which it supplements it is usually lower than the local rate.

Import and export freight at many ports is carried on rates usually lower than those given to domestic traffic. This follows from the highly competitive conditions which prevail in such traffic which has the choice of a number of ocean routes and rail routes, and is competed for by many seaports as well as by a large number of industrial sections.

In the foreign trade of the Central West very few import and export rates are at present in effect at New York, Philadelphia, Baltimore and Virginia ports. These ports are accepted as the basic rate ports with reference to the domestic rates of which the export and import rates in effect at other ports of the United States and Canada are adjusted. The dominant purpose of the export and import rates at eastern Canadian ports, Portland (via the Grand Trunk), Boston (export), South Atlantic, Gulf and Pacific Coast ports is to equalize these ports with the basic rate ports of the North Atlantic seaboard.

No import rates to the Central West are at present in effect from the basic rate ports of the North Atlantic seaboard. Those in effect from other ports are intended merely to equalize the various ports and inland routes with the North Atlantic ports and Eastern trunk lines. Formerly by granting low import rates the railroads were often able to overcome in large part, high tariff charges on certain commodities and thus benefit importers and manufacturers dependent upon imports for their material. In a recent investigation made by the Tariff Commission it was found however that present import rates did not appreciably affect the protective custom duties of the government.

2. *Commodity rates.*—A commodity rate takes any given article out of the general classification. It may be fixed by one road or several roads acting jointly, and is valid only for the roads which adopt it. While for certain articles commodity rates are almost universally applied, the special interests of one road may lead it to grant a commodity rate upon some specific article, which is of no interest to another road, and

which for the purposes of the latter remains in the general classification.

The railroads grant commodity rates for a number of reasons. A shipper may secure them because the railroad on which his plant is located looks forward to the development of his business and expects a large part if not all of it to pass over its lines. Commodity rates are often granted by the railroads in order to equalize competition between various sections of the country or between communities. Low grade articles like lumber, coal, brick, and ore are usually moved on low commodity rates in order that the railroad may secure the business which otherwise might be carried by water transportation when such transportation is available.

A large part of the freight business of England and the United States is moved in this way. Over one-half of the traffic in England and at least three-fourths of the traffic in the United States is said to be carried on commodity rates. The railroads have always adopted a generous policy in this respect and have granted commodity rates whenever the amount of business offered justified them. Those who favor this policy point out that low commodity rates have contributed to the rapid industrial and agricultural development of large sections of the United States and have enabled manufacturers, miners, farmers, stock men and merchants to reach markets which otherwise would be closed to them. Those who oppose the spread of commodity rates believe that the railroads in granting them often work injustice upon communities in depriving them of tributary territory which is theirs by right of location and which thru low commodity rates they are obliged to share with other sections. As a result they claim there is a great overlapping of territory and hauling of cross freight.

3. *Commodity rates vs. class rates.*—Whenever a commodity rate is named in a tariff between specified points this rate is the lawful rate and the only rate that may be used, even tho a class rate or any combination of rates may be lower. The naming of a commodity rate takes the article out of the classification and out of the class rates between the points in question. If it is desired to use both class and commodity rates it may be done by including in the section of the tariff where they are to be used the following rule: "If the rates in Section—(e. g. 2 of this tariff) make a lower charge on any shipment than the rates in Section—(e. g. 1 of this tariff) the rates in Section 2 will be applied." In almost all instances commodity rates are lower than class rates but there have been cases in which the commodity rates were the higher.

4. *Rules for tariff making.*—The Interstate Commerce Commission has prescribed a very elaborate set of rules to be followed by the railroads in the preparation, printing and filing of freight rates. These rules are published by the Commission in its Tariff Circular 18A.

Tariffs must be printed and must follow the form and size prescribed. Any changes made in them must be indicated in the tariff or in a supplement. The title page of this tariff must indicate the name of the carrier which issued it, the I. C. C. number and number of tariff canceled, must state whether the tariff is local, joint or proportional, and must specify the points between which it applies, the governing classification, date issued, date effective and if issued on less than statutory notice a statement to that effect, the number of supplements to be issued in connection with it and the name, title and address of the officer issuing it.

The Commission also prescribes the contents of a railroad tariff. A table of contents must be given unless the tariff is so small as not to warrant it. The names of the carriers issuing the tariff must be shown. An index of commodities on which commodity rates are given, indexes of stations alphabetically arranged from which and to which rates apply, reference marks, a list of exceptions to the classification not given in exception sheets, rules governing the tariff, rate tables and routes over which the tariff applies are among the other requirements of the official rules.

5. *The local tariff.*—Tariffs applicable to stations on the lines of one railroad are local tariffs which may give class rates, commodity rates or both on local traffic.

There is no set rule followed by the railroads in stating these rates. If the tariff is made up on a distance basis one table usually shows the distance between each pair of stations while another table indicates the rates. As the distance increases the rates do not increase in equal proportion; in other words, the rate per mile diminishes. The usual method followed in stating local class rates on a distance basis is to use multiples of five. Another method followed in making local tariffs is to state the rate from one station to the others by pairs of stations. One tariff may state the rates between all pairs of stations on the railroad's lines or a number of tariffs may be issued giving the rates from one station, or a group to all other stations.

Rates may be presented in a number of different ways. In a local tariff issued by one railroad, opposite the index of stations, arranged in alphabetical order, is given the page number of each station from which the tariff applies. Following this is an alphabetical list of stations to which rates apply with an index number given to each station. When the shipper or station agent wishes to find a local rate he turns first to the alphabetical list of stations in the front of the book and secures the page number of the station from which the rate is wanted. He turns next to the alphabetical list of stations and secures the index number of the station to which his freight is to be consigned. He then turns to the page giving the station of origin and the index number of stations of destination. In columns opposite the index numbers of stations of destination he finds the rate for the class in which his freight falls, the classification having previously been secured from the freight classification book.

The following table shows class rates from Ithaca, New York to a number of station groups. Let us suppose that a shipper in Ithaca is about to send some first class freight to Sandy Run, Pennsylvania, a local haul over the Lehigh Valley railroad. Turning to the tariff index of stations from which rates apply he finds the pages on which rates from Ithaca are quoted, and from the alphabetical list of stations the index number of Sandy Run he finds to be 197. The first class rate on stations in the group reading from Ithaca, he finds to be 51½ cents a hundred pounds.

From Ithaca, New York

To Stations taking Index Nos. as shown on pages 4 to 9	Classes: Rates in cents per 100 pounds							
	1	2	Rule 25	3	Rule 26	4	5	6
193 to 198	51½	44	37½	36½	29	25½	21½	18
199 to 200	51½	44	37½	36½	29	25½	21½	18
201	53	45	38	36½	29	27	22½	18
202	53	45	38	37½	30	27	22½	18
203 to 211	53	45	38	37½	30	27	22½	20

Another method by which local rates may be shown consists in printing at the top of the page of the tariff the names of stations, alphabetically arranged. Below them in vertical order to the left is given a list of stations to which shipments may be made, each station having an index number assigned it. The body of the page consists of a series of rate reference numbers under each heading showing the rate basis prevailing from that station to each of the stations enumerated at the left. Having found the appropriate number for any given haul, consultation of another table showing class rates for each rate basis will give the desired information. In the following illustration will be found the manner in which this class of tariff operates.

Let us suppose the second class rate from Irvington, New York to Fonda, New York is required. At the intersection of Irvington with Fonda the rate reference number 81 is given. The rate table shows that the second class local rate between these points is 51 cents per hundred pounds. A portion of the tariff page giving this information and the rate base used in this connection are reproduced below.

	Hoffmans, N. Y.	Holcomb, N. Y.	Holley, N. Y.	Honeoye Falls, N. Y.	Hudson, N. Y.	Hyde Park, N. Y.	Inwood, N. Y.	Ionia, N. Y.	Irvington, N. Y.
Mohawk Div. (Cont)	Rate Reference Numbers								
242 Amsterdam-(Forest Ave.) N. Y.	7	83	86	86	52	62	81	86	80
245 Fort Johnson N. Y.	7	83	86	86	52	62	81	83	81
247 Tribes Hill N. Y.	11	83	86	86	52	66	85	83	80
250 Fonda, N. Y.	21	83	86	83	56	66	85	83	81
253 Yosts, N. Y.	25	83	86	83	56	69	85	83	81

Rate Reference Number	Rates in Cents per Hundred Pounds							
	1st Class	2nd Class	Rule 25	3rd Class	Rule 26	4th Class	5th Class	6th Class
81	61½	51	43½	42	33½	30	25	20½

Where stations on one division of a railroad are desired the following form of tariff is sometimes issued. This is an easy tariff to read as all the information is contained in one table.

Between High Bridge, Kingsbridge and Morris Heights, N. Y.† *

Index No. and	Miles from High Bridge	1st Class	2nd Class	Rule 25	3rd Class	Rule 26	4th Class	5th Class	6th Class
1 * Morris Heights N. Y.	1	35	30	25½	24	19	17½	12½	10
2 Kingsbridge, N. Y.	3	35	30	25½	24	19	17½	12½	10
3 Dunwoodie N. Y.	7	35	30	25½	24	19	17½	12½	10
4 Bryn Mawr Park N. Y. ..	8	35	30	25½	24	19	17½	12½	10
5 Nepperhan, N. Y.	10	35	30	25½	24	19	17½	12½	10

In reading a local commodity tariff, reference is first made to the commodity given in the alphabetical list of articles on which rates apply. Opposite the commodity is given a list of stations from which commodity rates apply and in an adjoining column the stations, by index number, to which rates apply. The corresponding names of the stations of destination are given in an index at the front of the tariff. The last column of the tariff contains the rates.

Let us suppose that a shipment of chloride of lime in kegs is to be made in carload lots from Niagara

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† Carloads only.

* Inbound shipments should be way-billed to Kingsbridge, N. Y. showing final destination.

Falls to Yonkers, New York. The cover page of the tariff indicates that Niagara Falls is one of the stations from which shipments may be sent and, in the column opposite the name of the commodity, we note that Niagara Falls is included in this list. The following column gives the index numbers of stations of destination as 1 to 301 inclusive. On referring to the index of stations we find that Yonkers is index number 100 and is within the group of stations to which chloride of lime may be sent on the 18 cent rate as quoted in the last column of the table. A portion of the tariff in which the rate is given is reproduced below.

Articles on which Rates Apply

The following list enumerates only such articles as are given specific rates; articles not specified will take class rates.

On	From Stations on N. Y. C. R. R. as shown on page 5 taking the following numbers and names	To Stations on N. Y. C. R. R. as shown on pages 5 to 7 inc. taking the following Index numbers.	Rates in Cents per 100 pounds, except as otherwise provided
Lime, chloride of C. L.: In cans, packed in boxes or barrels. In kegs or barrels	425 East Buffalo N. Y. 425 Buffalo N. Y. 432 Carroll St. N. Y. 435 Louisiana St. N. Y. 437 Ohio St. N. Y. 442 Erie St. N. Y. 458 Echota N. Y. 460 Niagara Falls N. Y.	1 to 301 inc.	(A) 18

(A) Indicates advance in rates.

6. *Local rates combined with thru rates.*—While

local rates apply primarily to local traffic they are often used in combination with other local rates or with joint rates in securing rates on thru traffic in territory where no joint rates are found. If there are no joint rates in existence for the complete route which a shipment is to take, local rates are used over that part of the distance where no joint rates exist. Shipments frequently may take a wide variety of routes and the far-seeing traffic manager or shipper will compare these routes in order to secure the lowest rate commensurate with the service given.

7. *Classification and local tariffs.*—The cover page and title page of a local tariff of class rates must refer to the governing classification, and if there are any exceptions it must note the fact. The form used may read somewhat as follows: "Governed, except as otherwise provided herein by the Official classification No. 44, I. C. C.—O. C. No. 44 (Issued and filed by R. N. Collyer, Agent), supplements thereto and reissues thereof; and by exceptions to said classification L. V. R. R. I. C. C. No. C-4810, supplements thereto and reissues thereof." Most of the tariffs issued are governed by the Official, Southern or Western classifications but there are tariffs which are not governed by them.

Local tariffs may be governed by state classification, by exceptions to classifications issued by the railroads or by special classifications included within the tariffs. When tariffs note exceptions to the classification, the shipper must consult the exception to see if his commodity is classified there. Otherwise it will take the regular class rate.

8. *Joint tariffs.*—The joint tariff contains rates made by agreement between the carriers, and is issued by them or by their recognized agents. If there were no thru rates, if the railroads would assume no responsibility for facilitating shipments beyond their own lines, and if each of several lines figured and collected a local rate for its share of the haul the inconvenience would make shipments to distant points almost impossible. Before the passage of the Interstate Commerce Act in 1887 the railroads would oftentimes make joint rates which were either ignored or avoided by the other carriers supposed to participate in them. Even during the early years of the life of the Commission little was done to give the Commission any effective control over these rates and it was not until the amendments of 1906 and 1910 were passed that the Commission was given power to supervise and regulate joint rates. They are now subject to the same regulations as other rates. The names of the carriers parties to joint rates must be specified in the tariff and all carriers but the one filing the tariff must file concurrences with the Commission. The concurring carriers are not required to file copies of the tariff.

Joint tariffs must be filed and published in the same manner as all other tariffs. The Commission, after a hearing, is given power to establish joint rates when carriers have refused or neglected to do so and has power to prescribe the maximum or minimum rates, or both, which the carriers are to charge.

The concurrence of the connecting lines must be given in forms provided by the Interstate Commerce Commission which must be filed with that body, the fact of such concurrence being noted upon the published tariff. In some cases the concurrence extends to a specific tariff filed, in others it may apply to rates *to* points on its line but not *from* such points, while in the broadest form a road gives another authority to make rates on all joint traffic over the lines of the concurring company. Each of these and some special varieties of concurrence are provided for in special forms.

9. *Revoking concurrence.*—Observing the proper forms and the times specified by the Commission's rules, concurrences may be revoked. This revokes all tariffs based upon them. If the company issuing the tariff neglects to make the necessary changes shippers can still follow the published rates but the issuing carrier would be liable to the one previously concurring for the difference between the rates as published and those resulting from the revocation correcting them.

A joint tariff which is not properly authorized is unlawful and those participating in it are not required to observe it. Any carrier which includes another as party to a joint tariff unlawfully, or which improperly uses a concurrence is liable for the difference between the charges indicated in the published tariff and what they would have been had the tariff not been published. The carriers quoted as participating suffer no loss and the shipper can not be held responsible. He is guided solely by the published rates.

10. *Joint rates as legal rates.*—A joint rate as established is the legal rate but at times joint rates have come into conflict with the provision of the Interstate Commerce Act which forbids a carrier from charging a greater compensation for a thru rate than the sum of the intermediate rates. If the joint rate does not exceed the sum of the intermediate rates, and has been in effect for 30 days or over, it may be reduced to the sum of the intermediate rates on posting and filing with the Commission a supplement or reissue of the tariff in which the rate appears. This may be done on one day's notice. The supplement must bear the notation that it is effective in less than the required time "by authority of Rule 56 of Tariff Circular No. 18 A." The Commission has power to exempt the carriers from these rules but when an exception is made the joint tariffs containing such higher thru rates must contain a notation giving the order number of the Commission which permits this departure.

11. *Illustration of a joint tariff.*—The method followed in the construction of the joint tariffs is the same as that used in the construction of local tariffs. The rates quoted may be joint and propor-

tional class rates, commodity rates or both. At the front of the tariff are given alphabetical lists of stations from which rates apply and of stations to which rates apply and in some cases a geographical list of stations of the railroad issuing the tariff. For example in finding a joint rate from Allentown, Pennsylvania to Bayside, New Jersey the alphabetical list of stations at the front of the book shows that Allentown is located on the Philadelphia and Reading railroad and bears the index number 148. Turning to the list of stations to which rates apply we find that Bayside, New Jersey is located on the Central Railroad of New Jersey and has the index number 282. On consulting the page from which Allentown rates are quoted we find that Bayside is grouped with stations having index numbers 247 to 282 and that the first class rate is 53 cents per hundred pounds. The last column of the tariff bears the route designation letter, E which on referring to the page giving routings shows that the shipment will be sent via Winslow Junction, New Jersey. A portion of the tariff in which this information is given reads as follows:

Note 1.

From

Index No. 147, East Penn Junction, Pa. P. & R. Ry.
Index No. 148, Allentown, Pa.

To

Stations on the Central Railroad of New Jersey, Hoboken Manufacturers Railroad, New York and Long Branch Railroad, Railway Valley Company and East Jersey Railroad and Terminal Company, taking Index Numbers shown below:

Index Numbers	Classes Rates in Cents per 100 pounds								Route
	1	2	3	4	5	6	Rule 25	Rule 26	
247 to 282	53	45	38½	27	22½	20	38	30	E

Another method followed in stating joint and proportional class rates is to have a tariff show under a station or group of stations the rates to other stations on a foreign line which apply. In the following illustration taken from part of a page of a tariff this method is shown. The index numbers of stations of destination are printed in numerical order on another page of the tariff with the name of the station opposite so that on referring to the desired number the name of the station is obtained.

12. *Agency tariffs.*—In order to avoid a great multiplicity of tariffs the Interstate Commerce Commission permits the railroads to employ agents in publishing joint tariffs in territory which is common to a number of carriers. It can be readily seen that if for every route each railroad were required to publish a separate tariff there would be a great duplication of effort in quoting rates from and to the various points. Thru the use of a common agent to publish their joint tariffs the railroads have found that they not only can effect economies in printing but also secure a more simplified tariff than if each carrier

Index No.	To Stations on Boston and Albany R. R., shown on page 5 taking the following Index Nos.	Rates in Cents per 100 pounds								
		Classes								
		1	2	Rule	3	Rule 26	4	5	6	Route
1651 Millerton, N. Y. 1654 Mount Riga, N. Y. 1657 Boston Corners, N. Y. 1660 Copape Falls, N. Y. 1663 Hillsdale, N. Y. 1665 Craryville, N. Y. 1668 Martında.e, N. Y. 1671 Philmont, N. Y.	1 to 18 inc	74	66½	56½	55½	44½	41½	r29	23	E
	19 to 24 inc	74	66½	66½	54	43	40½	28	22½	E
	25 to 29 inc.	74	66½	r56½	r53	r42½	r39½	27½	22	E
	30	74	65	55	a51½	41	38½	a27	21½	E
	31 and 32	74	63	53½	49½	39½	37	26	r20½	E
	33 to 47 inc.	73	a62	52½	49	39	36½	a25½	20½	E
	48	73	a62	52½	49	39	36½	r25½	20½	E
	49 to 54 inc.	73	a62	52½	49	39	36½	e25½	20½	E
	55 to 57 inc.	74	63	53½	49½	39½	37	26	21	E
	58 to 59 inc.	74	65	55	51	41	38½	26½	21½	E
	60 to 61 inc.	73	a62	52½	49	39	36½	r25½	21	E
	62	59½	50½	43	40	32	30	21	r16½	E
	63 to 75 inc.	55½	a62	40	37	29½	28	r25½	15½	E
	76 to 86 inc.	59½	50½	43	40	32	30	21	r16½	E
	87	55½	47	40	37	29½	28	19½	15½	E
	88 to 96 inc.	59½	50½	43	40	32	30	21	r16½	E
	97 to 99 inc.	55½	47	40	37	29½	28	19½	15½	E
	100 to 102 inc.	51	43½	37	r34	27½	r25½	18	a14½	E
	105 to 114A inc	51	43½	37	r34	27½	r25½	18	a14½	E

a Indicates advance in rates.
r Indicates reductions in rates.
e Via Chatham, N. Y.

printed these rates separately. Similar economies are effected by the railroad in the use of a consolidated classification.

The Commission has laid down rules regarding the issue of agency tariffs in order to protect the carrier. The agent is given a power of attorney which permits him to act for the carrier alone and for it jointly with other carriers in filing tariffs, classifications, exception sheets and supplements. If the power of attorney is given to the agent to act jointly for a carrier he may secure concurrences from connecting lines on thru rates which he publishes. The power of attorney must be signed by one of the executives of the railroad and can not be signed by a traffic officer as in the case of a concurrence. Both the power of attorney and the form of concurrence to be used in these cases are prescribed by the Interstate Commerce Commission and all papers granting authority must be filed with the Commission.

While an agent can publish and file a tariff for a railroad he has no authority to make rates for it. These must be made by the rate department of the railroad itself.

13. *Joint agency publications.*—In addition to publishing and filing rates for carriers in one territory an agent may join with agents in other territories in publishing rates on traffic passing over various territories. Such tariffs must show the I. C. C. numbers of the agents filing and each agent must file the tariff for the roads for which he is acting as at-

torney. This makes it unnecessary for the various roads represented to exchange concurrences. The Transcontinental Freight Tariffs are publications of this nature.

Joint agency tariffs bear the I. C. C. numbers just as do other tariffs and also bear the number given by the agent issuing them. Thus one of the Transcontinental Freight Bureau's west-bound tariffs is designated Number 1-T canceling a similar tariff number 1-S and supplements issued previously. Issues of joint agency tariffs always have the same numbers in order for identification. Succeeding issues are designated by letters in the manner indicated above. This enables a shipper to secure a guide to a tariff applying to a particular territory.

14. *Reading an agency tariff.*—An agency tariff is more complicated to read than a local or a joint tariff because it usually contains information relating to a large number of lines, to both class and commodity rates and because there are a large number of general and special rules in it to consult. There are usually anywhere from three to six sections and subsections to the tariff and at the head of each section the statement is made that if the rates in one section are lower than those in sections enumerated, the lower rates will apply. This makes necessary the reading of rates in more than one section in order to secure the proper rate. Often notes are appended to sections stating when class and commodity rates apply.

In reading a joint agency tariff, such as Transcontinental Freight Bureau's West-Bound Tariff No. 1-T which contains local, joint, export and import class rates and local, joint, export, import and proportional commodity rates from eastern points to points in Arizona, California, Mexico, Nevada, New Mexico, Oregon and Utah it is necessary first to determine whether the shipment comes under class rates, commodity rates or special commodity rates. If no commodity rate is quoted it is to be presumed that the shipment takes a class rate. If a class rate prevails the alphabetical list of stations to which rates apply is consulted. Opposite each station is given the name of the railroad upon which it is located, the class, arranged by scale number, and an enumerated list of gateways thru which the shipment may be routed. On turning to the scale number given the rates by classes will be found from each territory. The territories are designated, A, B, C, D, E, F, G, H, and J and in an alphabetical list of points arranged by states will be found the group number of the point from which the shipment is to be made. The following illustration will serve to show how transcontinental rates are given.

As an application of this tariff let us suppose that a shipper is shipping first class freight from Abanda, Alabama to Hachita, New Mexico. He finds under the index of stations mentioned in column 2 that Abanda takes Group B rates and, in the index of stations to which rates apply, that Hachita is located on the E. P. & S. W. (El Paso and Southwestern)

To points shown on pages 34 to 96, inclusive as taking	From points shown on pages 1 to 28, inclusive as taking	Class Rates (See notes 1 and 2, page 119)									
		In Cents Per Hundred Pounds									
		1st Class	2nd Class	3rd Class	4th Class	5th Class	Class A	Class B	Class C	Class D	Class E
Class Scale No. 191	Group A Rates ..	533½	450	370	318½	250	263½	220	180	152	136½
	Group B Rates ..	492	408½	336½	296½	233½	242	203½	166½	140	125
	Group C Rates ..	463½	393½	320	286½	225½	233½	195½	158½	133½	120
	Group D Rates ..	446½	380	315½	270	225½	233½	182	156½	133½	115½
	Group E Rates ..	413½	352	292	250	208½	216½	168½	148½	138½	106½
	Group F Rates ..	363½	310	256½	220	183½	190	148½	132	113½	93½
	Group G Rates ..	360	310	256½	220	183½	190	148½	126½	113½	93½
	Group H Rates ..	360	310	256½	220	183½	190	148½	126½	113½	93½
	Group J Rates ..	312½	256½	219	187½	150	162½	125	109½	94	78

railroad, bears class scale number 191 and that shipments are made to it via western gateway 2. On consulting the list of gateways he finds gateway 2 to be via Deming, New Mexico or El Paso, Texas in connection with the El Paso and Southwestern system. The shipment therefore will be routed via El Paso. The first class rate quoted from group B points to class scale 191 he finds is $4.92 per hundred pounds.

If a shipment of freight taking a commodity rate is to be made, between these points the shipper will first consult the section of the tariff showing commodity rates. Let us suppose he is shipping a carload of lumber. Under this designation he finds that lumber may be shipped from group B points which includes Abanda to points taking rate bases 1 and 2. On consulting the index of stations to which rates apply he finds that Hachita takes rate bases 2, 3. Referring again to the section on commodities he finds that lumber to Hachita takes rate basis 2 and that the rate in carloads is $1.33½. The section of the tariff in which these rates are given is reproduced on the opposite page.

15. *Fast freight line billing or instruction books.*—It is practically impossible to give in all tariffs covering one large territory the freight rates between all points of origin and destination. The practice followed is usually to show a tariff of rates to important base points and then to give in a billing book the stations which take the same rates as the base points. This does away with a large amount of duplication

Item No.	*Articles*	*Min. C. L. Wt. (Pounds)*	*Rates In Cents per 100 Pounds (Except as noted)*						
			FROM Points shown on pages 1 to 28 inclusive, as taking the following Group Rates	*TO Points shown on pages 34 to 96, inclusive, as taking*					
				Rate Basis 1		*Rate Basis 2*		*Rate Basis 3*	
				L. C. L.	*C. L.*	*L. C. L.*	*C. L.*	*L. C. L.*	*C. L.*
2315	Lumber and Articles Manufactured Therefrom, viz.: Arms, cross, wooden Backing, wood, for pictures and mirrors Lath, woven wood Lumber Poles, electric line, telegraph or telephone, wooden Wood, built-up, combined or veneered NOTE.—Rates provided in this item will not apply on woods of value, *i.e.*, Cocobola, Ebony, Lignum-vitae and Rosewood.	40,000	A		153½		146½		
			B		140		133½		
			C		133½		126½		
			D		126½		120		
			E		[1]120		[2]113½		
			F		106½		100		
			G		106½		100		
			H		106½		100		
			J		100		94		

[1] Rate from Greenville, Miss., will be 126½ cents per 100 pounds.

[2] Rate from Greenville, Miss., will be 120 cents per 100 pounds.

and prevents the tariffs from becoming unduly large.

The billing book is issued by an agent, in similar fashion to a joint agency tariff. To all intents and purposes it is part of a tariff and the method of publication is prescribed by the Interstate Commerce Commission. The carriers interested may choose one of their number to execute power of attorney to appoint an agent to issue the billing book which is to show on its title page that it is issued by an agent for the carrier granting power of attorney. The other carriers give concurrences according to forms specified. It is necessary also, when a billing book is issued in connection with a tariff to have an I. C. C. number and for reference to be made in the tariff to this number.

16. *Aids in finding rates.*—A number of sources may be consulted by the shipper when he wishes to secure the name of the railroad upon which a town is located. Bullinger's Postal and Shippers' Guide and the Official Guide of Railways and Steam Navigation Lines of the United States contain alphabetical lists of stations and the names of the railroads upon which they are located. F. H. Leland issues a List of Open and Prepay Stations giving all the freight stations in the United States, the name of the railroad upon which they are located and stating whether freight may be shipped to them collect. The Official Equipment Register gives a description of car equipment of the principal railroads and a list of junction points which are of aid in determining how a shipment should be routed.

In finding any rate it should be determined first whether it is a class or commodity rate. If there is no commodity rate given the shipment travels on a class rate. The classification which applies is noted on the title page of the tariff as well as any exceptions to be noted. When a commodity rate is given it takes precedence over a class rate unless the tariff permits an alternate use of class and commodity rates.

It is well also to give particular attention to all notes and reference marks found in tariffs and classification for otherwise the shipper will be misled by the information given.

REVIEW

What are the two general classes into which rates are divided; into which tariffs are divided?

What is a joint rate and how is it applied?

Name some of the important provisions for making a freight tariff prescribed by the Interstate Commerce Commission.

How may local rates be applied?

How are joint tariffs issued and by whom?

When may a joint rate be reduced without giving the required 30 days' notice?

What is an agency tariff?

What is the purpose of a billing book?

CHAPTER VII

QUICK MOVING FREIGHT—EXPRESS AND PARCEL POST

1. *How freight is moved.*—Ordinary freight without preference moves in a somewhat leisurely way. It takes time to make up trains at the terminals, it takes time to pick up cars enroute, freight trains must give passenger trains right of way, and as a rule they make slower time. Less-than-carload shipments are subject to even greater delays. The railroads must classify freight offered them. It takes time to get a carload assembled. Delivery of such goods also takes time.

There are circumstances in which the requirements of business will not brook these delays. Various means are adopted in special cases. Some of them relate primarily if not exclusively to carload shipments and these will receive first consideration; others are designed to meet the needs of those who ship in less-than-carload lots and the discussion of these must include an account of express service and its rival, the parcel post.

2. *Fast freight.*—In the early days of railroad transportation up to the period which marks the close of the Civil War railroads were averse to having cars pass beyond the limits of their own lines. Shippers

who were sending freight over more than one line were forced to employ agents to see that their freight was properly transferred at junction points and reloaded on cars of connecting lines. This soon led to the formation of fast freight line companies operating on eastern roads to handle all interline business. These companies provided their own cars, made arrangements with the railroads to haul them thru to destination and performed all the services which a common carrier does today. With the development of the railroad business and the establishment of car interchange the railroads became more intimately associated with each other and took over the work of the fast freight lines.

After 1890 the fast freight lines fell into disuse and the railroads developed a system of cooperative freight lines in which each of the participating railroads agreed to furnish a certain number of cars, usually on a basis of mileage owned. A general manager was put in charge of the business and earnings were divided on a pro rata basis. This system was in essence a joint agreement among the roads to perform interline service.

As railroad transportation continued to expand, the larger railroads absorbed the cooperative freight lines and while the names of the old lines in many instances were retained as trade-marks or brands to aid in soliciting business the service was performed by the railroads.

While the fast freight and cooperative freight lines no longer maintain their former importance it is customary for railroads to divide freight traffic into fast or slow freight, known under a variety of names such as manifest, symbol, red ball, preference or time freight for that which is carried on the faster trains, and ordinary, dead or way freight for the slower service. Perishable fruit, vegetables and dairy products and some package goods are carried in both carload and less-than-carload lots by fast freight on schedules as rigidly maintained as those of passenger trains. Trains are run daily regardless of the amount of freight offered, and in this respect differ from tonnage trains in which bulk commodities such as coal, grain, lumber, and cotton are shipped when a sufficient amount is provided for shipment. For the fast freight service no extra charge is made to the shipper, the companies using this feature as a "talking point" in obtaining competitive business.

In order to facilitate the passage of fast freight trains over the road the railroads endeavor to cut all delays to a minimum. On some roads fast freight cars are designated by symbols so that yard employes, when the cars reach the classification yard, will quickly switch them to the symbol train. On one eastern railroad the car inspectors are at work testing brakes on the fast freight trains while freight is being transferred. By the time the transfer crew has finished its work two switch engines are waiting to put the train together, the conductor has his way-bills and the road engine is ready to take the train on its way. Within an hour from the time freight is received the train is ready for the road.

On the road the fast freight train has the right of way over other freight movements. Slower trains must lay over at passing points or proceed on slow tracks. On some railroads passing reports are wired to the initial station as the train proceeds on its way. Officers and employes are provided with schedules showing arrival and leaving times at division and terminal points in order to note its progress.

As an illustration of the carefulness with which fast freight train movement is noted, the following situation report of a Lackawanna manifest train will be of interest. This train left Secaucus (a transfer point four miles from Hoboken, N. J.) the morning of October 11, 1921, for a trip to Buffalo, 385 miles away, maintaining a speed, including terminal time, of 20 miles per hour.

Morris and Essex Division

No. 51—Engines 1169 and 1170 loads 4009 m's Secaucus 10:33 A. M. Slateford Jn. 1:31 P. M.

Scranton Division

No. 51—Engines 1170 and 1169 Slateford Jn. 1:31 P. M. 70 loads 4009 m's. Arrived Scranton 4:16 P. M. Left Scranton 5:17 P. M.

Engine 1163—70 cars—4102 m's. Arrived Binghamton 7:30 P. M. Left Binghamton 8:05 P. M. 71 cars—4408 m's. Arrived Elmira 10:05 P. M.

Buffalo Division

No. 51.—Arrived Elmira 10:05 P. M. Left Elmira 10:50 P. M.

Engine 1165—72 loads 4627 m's. East Buffalo 5 A. M.

Another train of this nature is the Flying Fisherman on the New Haven railroad. This train leaves Boston each evening at 6:05 and at 3 the next morning is in the Harlem yards having covered the 230 mile journey in 9 hours. The train is loaded with fresh fish caught by Gloucester fishermen and brought to Boston for the New York trade. Within 24 hours after having been caught the fish are on the tables of New York consumers without any extra charge being made for the service.

3. *Private cars.*—The use of refrigerated cars came as a result of experiments in shipping perishable freight. Between 1860 and 1870 numerous attempts were made by various persons to ship dairy products, meats and fruits by placing them in refrigerated cars but the operation was not completely successful. By 1880 refrigerator cars had fully demonstrated their usefulness and it was about this time that Mr. Gustavus F. Swift used them for carrying beef between Chicago and the East. Within the next seven years Armour, Hammond, Morris and Cudahy adopted the refrigerator car for beef shipments and shortly after the California and Florida fruit growers adopted them for fruit shipments to eastern markets.

The refrigerator car revolutionized the packing business. It enabled the packers to build branch houses at distant points from the packing plants where meat could be stored in refrigerated rooms for delivery to the local trade. Dealers in small places remote from branch houses were reached by "peddler cars" which supplied them with fresh meats in less-than-carload lots.

Refrigerator cars were not built by the railroads, who pleaded either lack of funds or lack of faith, but by the shippers. Foremost in this work as we have seen were the packers. The profits resulting from the venture led them to continue it and to extend the service to shippers generally. In 1919 the "Big Five," as the large packers are called, owned 22,714 or 92 per cent of the refrigerator cars of the beef refrigerator (for meat shipments) and ventilator refrigerator (for fruit and vegetables) types. Other private car lines of the refrigerator type are owned by private companies who rent them to railroads and shippers for the trip or over a varying period. These private car lines own also a small proportion of stock cars.

Beside the refrigerator cars owned by the packers and the private car companies, certain of the railroads, as the Wabash-Missouri Pacific, St. Louis-San Francisco Railroad, Union Pacific-Southern Pacific, Santa Fé and Grand Trunk, own and operate refrigerator car lines for the transportation of perishable freight.

In the use of private cars, previous to 1906, a great outcry was made by the small shipper of discrimination resulting from money rebates, special concessions and other favors which the large shipper owning his own cars could exact from the railroad companies. The exorbitant charges made for icing were also a source of dissatisfaction at this time. In 1906, the

Hepburn amendment to the Interstate Commerce Act placed the icing charge under the control of the Interstate Commerce Commission.

The private car has given the large shipper advantages over the small shipper. While the large private car owner pays the same rate when shipping in his own car as if he used a car belonging to the railroad, he secures better treatment in having his cars carefully handled and quickly returned, than the small owner of private cars has received. The amount of tonnage which the large packers control have in times past enabled them to secure many concessions from the railroads.

As the railroads do not as a rule own private refrigerator cars they have recourse to hiring them from the private car companies at a fixed rental according to the type of car, of $1\frac{7}{10}$ or 2 cents a mile loaded or empty. Many roads find it cheaper to rent refrigerator cars than to put money into equipment which they could use only for limited periods during the year.

4. *The small shipper.*—The small shipper is naturally at a disadvantage in securing terms from the railroads. Shipping as he does in less-than-carloads he is required to pay a higher rate than the man who ships in carloads. It requires also a longer time for his shipments to get over the road, due to the fact that they must be sent to an assembling point where thru cars are being made up for various destinations. In this respect the railroads are powerless to help him.

In every line of business the large buyer is able to drive a better bargain than the smaller man and railroad transportation differs from no other business in this respect.

The small shipper, however, is favored by the railroad in its service of merchandise cars. These cars are run daily between the large centers thus enabling him to reach desirable markets quickly at no extra cost. Railroads will run cars direct between two centers provided a certain minimum amount of freight is offered. The larger the traffic the greater the amount of cars moved between terminals. Between New York and Boston a large number of merchandise cars may be sent out each day while between Philadelphia and Detroit it is possible that only enough freight will be offered to fill one car on the average each day. If the place is a large competitive center, railroads will run thru cars without regard to quantity offered. This gives to the large city an advantage over the small one which can not be overcome and which regulation is powerless to change.

5. *The express service and the small shipper.*—Because the relief afforded the small shipper was scanty and perhaps because, such as it is, it is relatively recent, express service developed. Thru the express an expedited service is secured at a charge which is roughly about four times the rail rates but in which is included a pick-up and delivery service which gives the shipper a "door-to-door" delivery. He is also given free insurance up to a value of $50 and beyond

this at a charge of 10 cents on $100. When package shipments are made they are placed in iron trunks for protection. All shipments are sent forward in sealed cars in charge of armed guards and travel in passenger or special express trains which insures to them a high rate of speed while in transit. A further advantage of shipping by express is that the shipper may ship "charges collect" which eliminates the time and trouble incident to collecting the express charges from the consignee.

6. *Origin and extent of express service.*—The earliest express service was started in 1839 by a man named Harnden who made regular trips between Boston and New York carrying packages and important documents for his patrons. His business grew so that he soon engaged messengers for this service which he extended to Philadelphia and later to European ports. In 1854 he united with Alvin Adams and some other competitors and founded Adams Express Company, which operated thruout New England, the Middle and Central states and in the South.

Two years before Adams Express Company was formed there was started in California the Wells, Fargo Express which transported by stage coach and pony express the mail, gold dust and other express matter to and from that region. This company developed until it operated most of the express business of the West as well as the business out of Pacific Coast ports for Alaska. Other companies with extensive operations were formed from time to time, but as a result of combinations and mergers only the American and the Southern companies with those already named had survived when the United States entered the World War.

The Director General of Railroads on coming into office refused to deal with these separate companies and stated that he would make terms with one company only, which should take charge of all business on Federal controlled lines. After a long period of negotiation the several companies on June 22, 1918 formed the American Railway Express Company the stock of which was held by the parent companies. After the War this Company was continued and in December, 1920 was recognized as a corporation by the Interstate Commerce Commission. This company operates over nearly all the railroad lines of the United States and has a mileage in excess of 264,000 miles. For December 31, 1920 this mileage was distributed as follows:

Steam Railroads	237,699.45
Steamboat Lines	23,371.37
Electric Railways	2,992.12
Stage Lines	193.42
	264,256.36

7. *Rates.*—Previous to 1906 express rates were made by the companies on the basis of their contracts with the railroads. In the year named the Interstate Commerce Commission was given the same power

over express companies as over other common carriers. One of the first acts of the Commission under this authority was an investigation of express rates which was completed in 1912. As a result of its investigations the Commission adopted a rate structure under which the country was divided into 950 blocks, each block consisting of one degree square. The blocks are formed by intersection of parallels of latitude and meridians of longitude; they are all 69 miles in length and vary in width from 45 to 62 miles. Each block is subdivided into 16 squares designated A to Q, omitting J. Separate rates have been worked out to cover shipments between each block and adjacent blocks.

For purposes of rate making or revision by the Commission or the express companies the country is divided into 5 zones based on traffic density. Zone 1 is east of the Mississippi and north of the Ohio; Zone 2, south of the Ohio and east of the Mississippi; Zone 3, comprises the territory west of the Mississippi to the Rockies; Zone 4, the intermountain territory; and Zone 5, the Pacific Coast States. These zones are not shown in the express tariff or rate book and agents are not concerned with them in quoting rates.

In finding a rate, let us say from Newark, New Jersey to Cincinnati, Ohio on a box of merchandise which weighs 60 pounds we first turn to the express directory giving the block numbers and sub-block letters of express stations. Here we find that Newark, New Jersey, the point of origin, is in Block 951, and Cincinnati, the point of destination, is in Block 1041. To obtain the rate scale between the two blocks we refer to the Block Tariff applying from block 951 and find that scale 35 applies to Block 1041. Our final step is to refer to the Local and Joint Schedule of First and Second-Class Rates, in order to obtain the rates on first and second-class goods. Under scale 35 we find the first-class rate for 60 pounds to be $2 and second-class $1.50. The box would then be expressed at $2, the merchandise rate.

In computing a rate on a shipment weighing over 100 pounds the first-class rate per pound at the 100 pound rate is multiplied by the number of pounds in the shipment. If the shipment is second class the rate is worked out on the first-class basis and 75 per cent of it taken for the second-class rate. If weights are fractional in part the next higher number is taken.

Class rates for express are divided into two classes. In the first class is merchandise and in the second foods, liquids, etc. Some shipments may take a rate which is 75 per cent of first class, others may be three times first class and still others eight times first class. Certain commodities such as products of the soil secure special commodity rates, in order to facilitate their shipment to markets. These special rates do not appear in the rate book; they are not of general interest, are not competitive and are sanctioned by the Interstate Commerce Commission. Examples of such rates would be the rates granted apples from the Northwest, cantaloupes from Colorado, oranges from California and Florida.

8. *Origin of parcel post.*—Until 1913 the express companies carried the greater part of the merchandise traveling by an expedited service on railroad trains. With the exception of books, package merchandise of more than four pounds per package could not be sent thru the mail and because of this limitation little was carried. With public opinion becoming increasingly insistent for a parcel post system Congress at last took heed to the popular demand and in 1912 passed a law, making effective at the beginning of the next year a parcel post system for the United States. Some time previous to this a parcel post with foreign countries had already been established.

The regulations of the new service permitted the mailing for domestic delivery of packages in weight up to 11 pounds, and in length and girth combined up to 72 inches. This mail so carried included merchandise, farm and factory products, seeds, bulbs, roots, plants, books, miscellaneous printed matter over 4 pounds in weight and all other matter not embraced in first, second and third class matter.

In arranging for parcel post service the law divides the United States into eight zones. The first zone includes a fifty mile stretch of territory from the center of any given unit of area; the second zone, 150 miles; the third zone, 300 miles; the fourth zone, 600 miles; the fifth zone, 1000 miles; the sixth zone, 1400 miles, the seventh zone, 1800 miles; while the eighth zone includes all units of area outside the seventh zone.

Rates vary from a charge of 5 cents a pound or fraction and one cent for each additional pound or fraction in the first zone, to 12 cents per pound or fraction for each additional pound or fraction in the eighth zone. If parcels are delivered on the same rural delivery route as the one in which they are mailed the charge is the same as in the first zone, 5 cents per pound, but on parcels weighing over one pound only 1 cent is charged for each two additional pounds, or fraction.

9. *Development of parcel post system.*—The parcel post met with popular favor from the start and it was not long before the post office department broadened the scope of this branch of its activities. It instituted parcel insurance which was later extended to cover parcels up to $100 in value. It adopted a C. O. D. system by which the value of parcels up to $100 may be collected from the addressee provided the transportation charges have been prepaid. It increased the weight limit in the first three zones up to 75 pounds and in the other zone to 50 pounds and increased the combined length and girth to 84 inches. Recently experiments have been made in carrying this mail, together with registered mail and mail of other kinds, in special containers. Tests made on mail carried between New York and Chicago

in portable containers loaded on special container cars has shown favorable results. The advantages claimed for this method are elimination of theft both by transit to station and while on the train, reduction of damage to a minimum, saving in labor cost thru less frequent handling of mail, maintenance of closer train connections with consequent saving in time and more compact loading of trains.

No complete record is kept of the number of parcels transported by parcel post but it is known to be very large. For the fiscal year ended June 30, 1920, however, figures are available for certain classes of mail. These figures show that over 115 million pieces of insured and C. O. D. mail were carried, from which fees of $7,486,350 were collected. As compared with the previous fiscal year this represented an increase of 36 per cent in the number of pieces of mail of this character carried and an increase of 51 per cent in amount of fees.

10. *Parcel post and express compared.*—In the transportation of articles to which they are adapted, the parcel post and the express company each possesses special advantages which the other lacks. The express company runs a pick-up and delivery service while the parcel post only makes delivery. This is especially valuable in rural districts. The express company receipts for every article received and insures free up to $50 against partial loss as well as against total loss while the parcel post makes an additional charge for insurance, insures only up to $100

and then solely against total loss. Express packages which are small and fragile are shipped in iron trunks, while most parcel post shipments are placed in mail bags and sometimes reach the addressee in a torn, damaged or mutilated condition. The express company allows a consignor to ship collect with privilege of examination by the consignee before the goods are accepted. The express company will also make special rates on large shipments such as carloads. Neither of these privileges is extended to patrons of the parcel post.

From the standpoint of cheapness the parcel post has proved itself superior for short distances, and it is also better for the carriage of articles light in weight for any distance. As a result the lighter business has gone to the parcel post almost entirely. During the year 1920 the absence of light shipments was responsible for a drop of 10 to 20 per cent in the volume of the express business. Motion picture films, celluloid and other inflammable articles, bonds, precious stones and other light packages of value are still shipped by express for the reason that express companies grant a larger maximum indemnity to shippers of valuables than does the government.

Shippers can ascertain the comparative rates for express and parcel post from important points to many destinations in various compilations published for this purpose or can secure this information at the local express office and post office.

11. *Railroad remuneration for mail and express*

business.—Up to November, 1916, the railroads were paid for carrying the mail on a weight basis according to an average taken over a hundred days, once during a four year period. At that time the Moon law changed the basis of payment to a space payment—a certain amount per mile according to size of cars or space used in them. The law left it for the Interstate Commerce Commission to determine the basis of compensation to be paid the railroads for performing this service. The Commission had previously consented to place over 90 per cent of the mail transportation on a space basis and this proportion has since been extended to all. The space basis for mail transportation the Postmaster General has found to be "sound in principle, practical as to operation and responsive to administration." Its chief value lies in conserving car space.

The express company pays the railroads for their service according to contract. The railroads furnish transportation facilities to the express company and to its employes. Payment is usually fixed on some multiple of the freight rate or on some other basis acceptable to the railroad. The express company pays to the railroad a portion of its gross receipts, usually about 50 per cent, and takes all risks while its property is on railroad trains.

12. *Future of these services.*—It is doubtful if both the parcel post and the express company can long continue to survive side by side because the work that

they do overlaps. The express company performs a special service like that of the Pullman car and the refrigerated car line which could be performed by the railroad. In fact it has been claimed that the existence of an express service has prevented the railroads from developing their freight service. While the express service is well performed and at a moderate cost it is unnecessary in view of the facilities already existing. In recent years its most successful field has been in foreign traffic and in the sale of foreign and domestic remittances. In the domestic field its express business has steadily dwindled since the establishing of the parcel post. With the railroad's ability to perform as well if not better the service now carried on by the express company, at little if any additional cost for equipment or labor, it is not unlikely that in view of the economies now being instituted in railroad operation the railroads may feel called upon to take up this service as an additional source of income. One railroad has already embarked upon it and more may follow.

REVIEW

Trace the history of the fast freight line.

What advantage has the private car given to the large shipper?

How has the railroad endeavored to overcome the disadvantage to which the small shipper is put in making a shipment?

In what ways does the express service favor the small shipper?

Describe the structure for making express rates as devised by the Interstate Commerce Commission.

Explain the system of rates for the parcel post service.

Compare the relative advantages of express and parcel post.

Do you believe the express service should be taken over by the railroads or be operated as at present? Why?

CHAPTER VIII

SPECIAL SERVICES AND CHARGES

1. *Modification of rates.*—The railway rates which we have been considering are the charges made for the carriage of goods from one railway point to another. In the present chapter we are to consider what are in effect modifications of the rates, arising from changes in routing after transportation has begun, stoppages in transit for one reason or another, and various conditions affecting the acceptance of goods for transport and their delivery at destination. These features of freight movement may or may not result in extra charges for the shipper but in any case they offer advantages to shippers who can avail themselves of them. Compared with those who are not able to obtain such advantages, these various special services are equivalent to rate reductions.

2. *Routing.*—Under the Interstate Commerce Act the shipper has a right to route his freight when it passes over a thru route and when he does so his instructions are binding on the railroad. Traffic not routed by the shipper may be carried by the railroad over any route or routes it sees fit, but the shipper is entitled to the lowest rates in effect between point of origin and point of destination.

In a case brought by a wholesale grocer of Pikeville, Kentucky, against the Director General of Railroads this point was at issue. The grocer had received a carload of canned kraut, shipped to him from Phelps, New York. Phelps is located on both the New York Central and the Lehigh Valley, the stations being a mile apart. Pikeville is on the Big Sandy branch of the Chesapeake and Ohio. The shipment of 62,000 pounds was delivered to the New York Central at Phelps, unrouted. That railroad moved it over its lines to Cleveland, from Cleveland to Cincinnati over the Cleveland, Cincinnati, Chicago and St. Louis, and from Cincinnati to destination over the Chesapeake and Ohio. The charges of $322.40 were made on a combination 5th class rate of 52 cents —27.5 cents to Cattlettsburg, Ky., a junction point on the Chesapeake & Ohio, and 24.5 cents beyond.

From Phelps to Pikeville there was at the time a 5th class rate of 35 cents, on shipments originating on the Lehigh Valley. The grocer contended that the New York Central agent should have turned the shipment over to the Lehigh Valley or at least have notified him of this rate. The transfer was, as noted, physically impossible at Phelps, but could have been effected without difficulty at Geneva, N. Y. To this point the rate on the N. Y. Central was 9 cents, which with the 35 cent rate already noted from Lehigh Valley points made a combined rate of 44 cents. The Commission ruled that the New York Central should have given the grocer the benefit of this latter combined rate and ordered the company to refund the difference between the charge so calculated and that actually paid. The shipper in other words ought not to suffer loss by the misrouting of the shipment by the railroad.

3. *Right of carriers to avoid short hauling.*—A carrier can not be required to "short haul" itself. This means in a general way that on joint traffic a railroad is entitled to carry the goods as far as possible over its own lines, provided no undue delay and no unreasonable charges arise from so doing. This can be made clear by an actual case. Some years ago lumber shippers in the state of Washington were in the habit of sending their products east over the Tacoma Eastern road, then independent, and the Northern Pacific. Some of their customers had the habit of specifying this route.

Later the Chicago, Milwaukee and St. Paul extended its lines to Tacoma and acquired the Tacoma Eastern. It soon did away with joint rates from points on the latter road via the Northern Pacific but carried freight at the same rate over its own line. If any one insisted on shipping over the Northern Pacific he could of course do so, but only by paying higher rates, combinations of the local rates. Since the Milwaukee route from Tacoma to Minnesota Transfer where transhipments took place was even shorter than the Northern Pacific route between the same points, there does not appear on the face of it any reason why the lumber shippers should prefer the old route. None the less some of them did so, alleging that customers requested it, and they appealed to the Interstate Commerce Commission to reestablish the privilege of routing by the Northern Pacific on joint rates equal to those over the Milwaukee. This was denied because to force the Milwaukee to ship in this way would have deprived it of a haul of 1800 miles for the benefit of its competitor.

4. *Routing over the cheapest route.*—The shipper is always entitled to a routing over the cheapest route either by a single rate or by a combination. This principle is extended to give him the benefit of the lowest rate, even tho by mistake or negligence his shipment is carried over a route which charges a higher rate. To make the working of this principle clear let us suppose a shipment delivered unrouted at the point A on road No. 1 and destined for D on road No. 4. (See Figure 1) The initial road routes it over road 3 between B and C. Now this road has no joint traffic arrangement with road 4, and in consequence a local rate is charged on both roads 3 and 4. On the other hand road 2 has a joint rate from B to D and this joint rate is less than the sum of the local rates by the other roads. Road number 1 is guilty of misrouting. The shipper is entitled to reparation equivalent to the difference between the two thru rates. Railroads 3 and 4 receive their local rates and the loss falls on road 1 which was responsible for the misrouting.

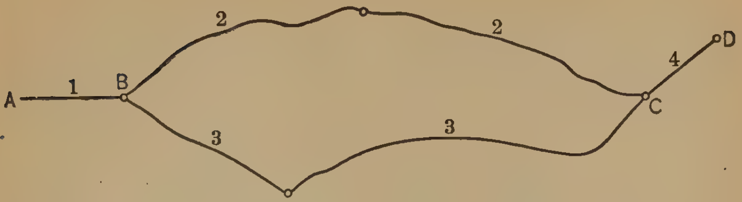

Figure 1. Alternate Routes.

5. *Routing according to instructions.*—Not only is it incumbent upon a carrier to follow routing instructions but it must follow them exactly as they are given in the bill of lading. If they are not clear it should ask the shipper for more definite ones rather than attempt to interpret them itself. In an interesting case which involved routing instructions on a carload of lumber from Eagle Gorge, Washington, to Gordon, Nebraska, the routing instructions read "N. P. to transfer % C. & N. W." No rate was inserted in the bill of lading. The Northern Pacific railroad moved the freight from Eagle Gorge, Washington, to Minnesota Transfer where the freight was delivered to the Chicago, St. Paul, Minneapolis and Omaha Railroad and the North Western railroad via Sioux City and Norfolk, Neb., to Gordon. The combination rate was 82.55 cents per hundred pounds, composed of commodity rates at 45 cents to Minnesota Transfer and 37.55 cents beyond. Two other routings would have been possible and each of them would have cost less than that actually chosen. The Northern Pacific could have diverted the shipment at Billings to the Burlington and the latter, at Crawford,

Neb., could have turned it over to the North Western to be forwarded to Gordon. By this route the change would have been 49.5 cents per 100 pounds. In the second place the Northern Pacific could have turned the shipment over to the North Western directly at Oakes, N. Dakota, and by this route the charge for the shipper from starting point to destination would have been 69.55 cents per hundred pounds. The situation is depicted in outline in Figure 2.

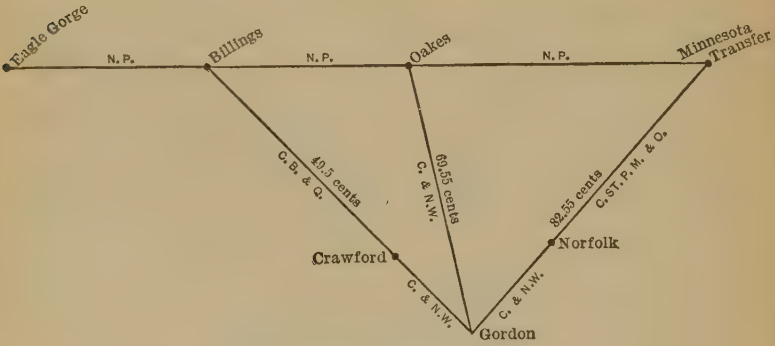

Figure 2. Choice of Routes.

The shipper claimed that the goods should have gone via Billings; the railroad justified its action by claiming that "transfer" always meant Minnesota Transfer and this was in effect on shipping instructions by that point. Of course the shipper claimed that "transfer" meant "deliver to." The Commission seems to have upheld the latter view, and held that as a transfer was to be made to the North Western it should have been made directly at Oakes and not indirectly at either of the other points. The commission adjudged it a case of misrouting and required the railroad to refund to the shipper the difference between the charges for shipment by way of Oakes and those actually paid.

6. *Absence of routing instructions.*—Where no routing instructions are issued on a thru shipment the initial carrier is permitted to route the freight over its own lines over a reasonable route. The Grand Trunk Railway purchased some storage batteries in Cleveland to be delivered to its line at Quebec. The Grand Trunk instructed the dealer that the batteries were to be routed via Buffalo over the Grand Trunk and thus save the freight charges from that point to Quebec. However, no routing instructions were given on the bill of lading, and the New York Central carried the shipment from Cleveland thru Buffalo to Messina Springs, New York, where it connects with the Grand Trunk. When the case came before the Interstate Commerce Commission for settlement the shipper claimed that the New York Central had carried the shipment over an unreasonable route. The latter road took issue with this view and claimed that in the absence of routing instructions it had carried the freight over a route commonly used in competition with those of other lines for freight originating at Buffalo and points west for delivery at Quebec. The New York Central was sustained by the Commission in its contention.

7. *Reconsignment.*—A feature in the transporta-

tion of goods which is of great value to shippers of fruit, vegetables, other perishable products, grain, live stock and other commodities is the privilege of reconsignment. It consists of changing the destination of a car either before it reaches its original destination or on its arrival there. The practice has grown enormously since its inception. The charges for reconsignment vary on different railroads and according to the article reconsigned. Generally one change is given free provided the car has not had a previous change in destination after leaving the initial billing point. As a rule a charge of $5.00 is made for reconsignment to cover the cost imposed upon the carrier. Special rules apply for the reconsignment of fruits, vegetables, grain and coal.

In shipping fruit and vegetables from points in Western and Southern classification territory one free reconsignment is made at the thru rate and two additional ones at the thru rate, plus reconsignment charges. In Official classification territory provision for two reconsignments at thru rates, plus reconsignment charges is general.

If a car is to be reconsigned on arrival at its original destination or if it is definitely known where the car is located, it is only necessary to give the order for reconsignment to one agent. If it is to be diverted before reaching destination the agents at a number of points on the route must be notified. If the route is unknown stop orders must be placed at junction points or gateways. The great majority of reconsignments are made at certain definite points on the line. The reconsignment notice is frequently in two parts, a telegram requesting that the car be held for further orders and a second telegram giving the new destination. Because of this practice such points are sometimes designated as "hold" points. At Chicago a reconsignment board is used on which the agent lists cars having reconsignment numbers. If the new destination is known the reconsigned car is handled in the same way as a diverted shipment. If the destination is unknown the car is placed on a hold track where, usually, cars are switched once a day. Whenever there is a large number of cars to be forwarded they are taken to a classification yard.

8. *Reconsignment in practice.*—The great value of reconsignment lies in quickly diverting commodities to places where they are most needed and where the shipper may obtain the highest prices for his product. Suppose that in the case of a grain shipment enroute from Chicago for Liverpool via New York, the shipper hears of an exceptionally low ocean rate being offered by a steamer at Baltimore which is about to sail for Havre. He quickly diverts his shipment so that at Pittsburgh it is routed for Baltimore there to be loaded on the steamer for Havre. The low rate secured from the steamer at Baltimore enables the shipper to sell his grain in Havre at a profit. He then sends a shipment from Chicago to New York to fill the space contracted for on the vessel going to Liverpool.

It is to be borne in mind that the rate paid on reconsigned cars is the thru rate, plus the reconsignment charge, and not the combination of the local rates. A dealer in celery may place an order with a Michigan grower for a carload of celery to be delivered in Chicago and held there for orders. While the celery is on its way, or before the free time at Chicago has expired, the dealer may hear of a profitable market at Fort Wayne and have it reconsigned to that destination. For this service the dealer pays the Michigan-Fort Wayne rate and not the sum of the local rates. Other commodities such as coal and lumber are handled in the same way, being sent to junction points to await orders and from there being dispatched to destination. This saves the expense of storing and rehandling.

Fruit is commonly handled in this fashion. Eastern selling agencies are given the number of cars in transit, the routes and the approximate location of the cars. The cars are billed to certain diversion points on the Missouri or Mississippi river or to Chicago. These cars are sold in transit by the agents in Eastern markets as demand arises and are diverted to new destinations on arriving at the diversion points.

9. *Milling-in-transit, etc.*—Another special feature of transportation is known as milling-in-transit. Its purpose is to place a number of points along the route of a railroad on the same basis as larger milling centers. The grain is loaded on cars for a certain

destination and at a point along the route, unloaded, milled, reloaded and moved to destination all at one low thru rate, plus a small charge usually made for the privilege. Grain grown in the Dakotas may be hauled to Minneapolis for milling and from there taken to Philadelphia, New York or other eastern points at the thru rate on flour from the point of origin. The railroad collects its local rate to the milling point, and receipts for the charges. When later the flour is shipped out the receipt is presented and the railroad bills the flour to destination at the difference between the amount already paid and the thru rate.

The milling-in-transit rate was granted by the railroads in response to the demands of eastern millers to be placed on a competitive basis with the millers of the West. Originally the milling industry was established in the East and gradually moved westward. With the growth of bonanza farming in that region large milling centers were built up, as at Minneapolis, near the source of supply. Millers nearer the seaboard were placed at a disadvantage with their western competitors since the local rate on grain from the West, plus the rate on flour from the mill to point of destination, made a greater charge than the thru rate on flour from such points as Minneapolis and Kansas City to eastern points. The small local miller in the West was also affected when crops were bad in his district and he had to secure his grain from points farther west. He also was unable to pay a combination of rates on grain from a point some three or four hundred miles distant from his mill and the local rates on flour from his mill to destination.

Rates in transit have not been confined to grain but have been extended at the urgent requests of shippers and localities to other commodities such as cotton, lumber and iron and steel products. With cotton the privilege has been made so broad that cotton can be unloaded and reshipped again over the same line to destination, all on the thru rate from point of origin. For example, iron and steel products, on a fabrication in transit rate, may be loaded at point of origin as articles of iron and steel and, at a station enroute to destination, unloaded and constructed into bridge and building material and there reloaded for point of destination, the shipment going the entire distance on the thru rate for fabricated iron and steel products, plus a small fabrication-in-transit charge.

REVIEW

If freight which is to pass over a thru route is not routed by the shipper can he object if the railroad routes it over a circuitous line?

What is "short hauling"? Illustrate.

Give an illustration showing that routing instructions prescribed by the bill of lading must be followed.

If no routing instructions are given what practice may be followed by the initial carrier? Illustrate.

Define reconsignment. What is its purpose?

What is a milling-in-transit rate? Why was it first granted? Name some commodities to which this kind of rate has been applied.

CHAPTER IX

SPECIAL SERVICES AND CHARGES (*continued*)

1. *Shipments and deliveries.*—Another group of special services in connection with railway operation concerns the shipment and delivery of goods. These usually take place at the company's station or yard to which goods are brought and from which they are hauled by the shipper or the consignee. This is the rule for practically all less-than-carload shipments, but the great bulk of carload shipments are made from and received at private sidings.

Private sidings are obtained under contract between the business enterprise and the particular railroad. The probable amount of business to be secured is a determining factor in fixing the terms and conditions of the arrangement. Once established they are an important economy to the shipper. Switching charges if made would not amount to the charge for drayage to which the shipper would be put if he delivered or received his goods at the regular stations.

Private sidings are destined primarily for carload shipments. But in case less-than-carload shipments are numerous, the shipper can avail himself of the advantage of shipping direct from his establishment thru what is known as trap-car or ferry-car service.

A trap car is a car loaded by one shipper with a number of less-than-carload lots destined to different points. The shipments are distributed at the railroad terminals at the point of shipment into other cars, to be forwarded to their respective destinations. The service is performed free by the railroads. The New York Central, for example, will without charge to either shipper or consignee switch a ferry car loaded with 12,000 pounds or over of less-than-carload freight to or from a warehouse, industry or factory having track connections with it when such freight has been received or is to be forwarded by the New York Central Railroad. If the car is less than 12,000 pounds it pays a switching charge varying from $3 at Rochester to $7 at Syracuse. Usually the car is switched between the private siding of the plant and the freight house of the railroad where if inbound it is unloaded from a merchandise car and if outbound loaded into such a car. Sometimes a ferry car can be moved directly between the private siding of the plant and a transfer station of the railroad.

2. *Delivery.*—When railroads have two or more freight terminals in a given city they will usually deliver freight to the station to which it is consigned, but it is not always obligatory upon them to do so. Such a case would arise when the depot designated was so crowded that it would be impossible to make delivery there. Such crowding results from the volume of business offered by other shippers, not from any act of the railroad. When this situation arises

and freight is carried to another station, the shipper can not make the railroad pay drayage charges, so long as he has had the proper notification. However, if the shipment consists of machinery requiring the use of a crane to unload and there is no crane at the station to which the freight is taken, the railroad will be required to deliver the freight at the specified station and hold the car until it is possible to "spot" it under the crane without charging the shipper for any delay in delivery.

If there are two railroads in a city and thru some error freight is delivered to the wrong one, and the shipper has a private siding on the railroad over which he routed his shipment, it is customary for the road at destination to place the car on the shipper's siding without collecting a switching charge, or as it is technically known by "absorbing" into the rate the switching charge required for this service. This is done as a matter of courtesy to save the shipper drayage expense. Moreover the railroad wants the business and does not care to incur the antagonism of the shipper.

3. *Lighterage.*—At certain ports it is customary for the railroads on thru shipments to absorb the lighterage charge. At the port of New York the railroads were forced to give free lighterage to carload freight within certain lighterage limits to meet the competition of the Erie Canal which furnished this service free. The lighterage limits include a wide stretch of shore, in some cases points as far as 26

miles apart. Three-fourths of the freight reaching New York must be car ferried across the Hudson to points on Manhattan Island, Long Island, or Staten Island.

During the period of the War free lighterage at New York was suspended and it was only after great pressure had been brought to bear by the Chamber of Commerce of the State of New York and other trade bodies that the railroads were induced to restore the service. The railroads constantly threaten not only to abolish the free lighterage service but also to restrict the lighterage limits. The shippers' conference committee of the Merchants' Association of New York have thus far successfully contended that the railroads should let the service remain as it is, since otherwise a large amount of freight would be sent out of other ports which now goes out of New York.

Lighterage charges are not absorbed on freight from local points to New York, such as from Newark. On the other hand, shipments to points adjacent to New York, altho requiring no lighterage service, carry the same rates as shipments to New York. Jersey City shippers appealed to the Interstate Commerce Commission for a rate lower than the rate to New York by the amount of lighterage but were denied. Had a change been made the result would have brought confusion, dissatisfaction and a general breakdown of the existing rate structures from many New Jersey points.

4. *Switching charges.*—In the delivery of carload

freight, consignees who have their own sidings to which cars are shifted and brought to their own doors have a decided advantage over all consignees who are obliged to collect their freight from the freight stations or yards. The practice of charging for switching service or absorbing it in the rate differs among the railroads; tho in competitive traffic, switching charges are usually absorbed. The transportation rate as published in freight tariffs includes only transportation from one public terminal to another. At the public terminal are found a freight house and team tracks from which to unload carload freight. This is done by the consignee at his own expense unless he has the car switched on to his own siding. In the latter case the car must be moved from the classification yard at destination by a switch engine and delivered to the consignee's siding. For this service the railroad company may make a switching charge. When, however, the cost of moving the car from the classification yard to the shipper's siding is not greater than the cost of delivering it at the public terminal the Commission has forced the railroads to absorb this charge.

In the case of interline switching when a car arrives over one railroad and is destined to a consignee located in the same place but on another line it is customary for the delivery line to take the car from the road which has hauled it and place it on the siding where wanted. The delivering line makes a charge for the service, usually from $3 to $5 a car, and the carrying line either absorbs the charge or adds it to the freight rate. If the railroad absorbs the charge it is only when it can make a certain amount on the car to make it worth its while to do so. The New York Central Railroad follows the practice of absorbing a switching charge of $6.10 at Buffalo when it has earned $15 or more on the car.

On interline switching the city of Chicago has been especially favored. Under the Lowery tariff, put into effect in 1911, a carrier railroad will deliver a car on the industrial siding or tracks of any other railroad line entering Chicago, at the flat Chicago rate. The carrier making the haul absorbs the switching charges levied upon it by the delivering road. This has proved to be a great service to Chicago shippers but a costly one for the railroads.

5. *Store-door delivery.*—The frequent congestion of freight at terminals has led railroad managers to consider with greater interest than before the suggestion of store-door delivery. This practice which is familiar in England and Canada, where it has flourished for some time, consists in taking the freight from the shipper's warehouse, factory or store, direct to the place of business of the consignee. In England and Canada this service is included in the rate.

It is very generally agreed by both carrier and shipper that store-door delivery is feasible but a number of details of operation remain to be worked out. One of the points at issue is whether the carrier or an independent transfer company shall perform the service. The carriers as a general rule are opposed to extending their liability beyond the station platform. They will undoubtedly cooperate with transfer companies in making collections and deliveries and work out the necessary tariff charges to be included in the rate, but it is doubtful if they can be persuaded to perform the service, even at an additional charge.

In arranging for store-door delivery it is necessary that a basic minimum charge be set for deliveries made in the manufacturing areas of commercial centers of cities. Every city has the largest volume of its freight delivered within a certain narrow area, usually in close proximity to a freight station. This charge should not be less than the cost of the service to the trucking company but it is a good business policy to fix it low enough to permit of a rapid expansion of this kind of hauling.

All charges for store-door delivery should be published as part of the railroad's tariff. This will make it possible to enforce other rules and regulations, such as relate to segregating freight by agents, delivery to specified transfer companies and especially the stabilizing of rates for the service.

Store-door delivery is intended primarily for less-than-carload freight. Carload freight is generally unloaded by the shipper or consignee, elsewhere than at congested terminals. While the service could, if needed, be performed by a transfer company it is not often needed.

6. *Demurrage.*—Railroad cars are not storage

places and to prevent their temporary use as such the railroads levy a penalty known as demurrage after a car has been 48 hours in the shipper's or consignee's possession. This period is known as "free time" and at its expiration demurrage automatically goes into effect. The purpose of the rule is to enable the railroads to keep their rolling stock in continuous operation as far as possible.

Demurrage charges grew up gradually. At first some roads made no charge and shippers naturally patronized those roads. The next step was the establishment by the railroads of demurrage bureaus in various sections of the country which collected demurrage for the railroads. When the Interstate Commerce Commission obtained control over demurrage, most of these bureaus were gradually abolished.

The 48 hours "free time" which is allotted commences for cars held for loading at the first 7 A. M. after placement on public delivery tracks. For cars held for unloading the time is computed from the first 7 A. M. after placement on public delivery tracks and after the day on which the notice is sent to the consignee. If, however, a notice is mailed a consignee after 3 P. M. he gets an additional 5 hours in which to unload or until the first 12 o'clock noon following the day of the mailing of the notice. Sundays and legal holidays are not counted in computing demurrage time.

The placing of cars for loading or unloading may be actual or constructive. Actual placement consists in placing a car for loading or unloading at a place designated by the shipper or consignee. It is constructive when a railroad offers a car to a shipper who for lack of room is unable to accept it. Constructive placement would occur when a shipper with a siding holding three cars and having three cars standing on it is offered two cars, previously ordered from the railroad, but which for lack of room he is unable to accept. As this would be the fault of the shipper, and not the carrier, demurrage would be charged on the cars. If the siding were empty and five cars ordered had been offered by the railroad it would be necessary to charge demurrage on two because the shipper would be unable to furnish siding space to accommodate them. When the carrier offers delivery and finds it impossible to make it, delivery is then made to the nearest possible point. In the case of public delivery yards or team tracks being filled the carrier may offer placement in another yard.

Notification shall be given the consignee in writing within 24 hours of the arrival of the cars at destination. The notice gives the point of shipment, car initials and numbers, enumerates the contents of the cars and states whether the contents have been transferred in transit, and gives the numbers and initials of the original cars. If the cars are not placed on a public delivery track within 24 hours after notice of arrival a notice of placement will be sent to the consignee. If cars are ordered to be stopped while in transit the person ordering them is to be notified of the arrival of cars at the stoppage point. Delivery of cars on private or industrial tracks or written notice to the consignee of readiness to deliver is notification. If the consignee removes part of the contents before notice has been received, as in the case of a teamster hauling freight for a consignee, this shall be considered notice and the act of the consignee's agent in unloading is considered constructive placement.

Another provision deals with bunching of cars. Under this rule when the carrier has delayed filling daily orders for cars, delivering them to the shipper "bunched," the shipper is allowed the same free time as if the cars had been delivered as ordered. If the carrier, thru neglect, allows the cars originating at the same points and moving over the same route to the same consignee to become bunched and delivered in excess of daily shipments the consignee is allowed the same free time as if the cars had been delivered regularly.

On certain kinds of cars demurrage rules do not apply, such as cars loaded with live stock, empty cars for loading at coal mines, private cars standing on private tracks, and empty private cars, which have not been placed for loading by a shipper, and are stored on carrier's tracks or on private tracks.

Demurrage charges are as follows: $2 a day for the first 4 days and $5 a day for each succeeding day. It is permitted to make offsets against demurrage under what is known as average agreement. This agreement is in six sections. (1) One credit is allowed for each car released within 24 hours. After 48 hours has expired one debit a car a day or fraction of a day is made for 4 days. No car is allowed more than one credit and not more than 4 credits shall be applied in cancelation of debits on one car. When a car has four debits a charge of $5 a day or fraction will be made for subsequent detention. (2) If credits have been earned by cars in loading they can not be used in offsetting debits on cars for unloading. (3) At the end of the month a balance is struck of debits against credits and a charge of $2 made per debit. No credits can be carried over. (4) Any one entering an average agreement shall not be entitled to cancelations or refunds of demurrage for weather provisions or bunching. (5) Security may be required for the payment of balances. (6) The agreement shall include all cars loaded or unloaded in the jurisdiction of the same station unless separate agreements are made for each unloading point. The cars loaded or unloaded in the jurisdiction of two or more stations can not be combined in an average agreement nor those loaded or unloaded by more than one consignor or consignee. Exceptions are made for cars consigned to public elevator warehouses, or cotton compresses.

In some states reciprocal demurrage laws are in effect on intrastate traffic. These laws provide that if the consignee is to be penalized for not removing his goods from a car within the stipulated time, the railroads shall also be penalized for failure to move freight between stations within a specified time or for failure to supply a car in time. Agitation for a universal reciprocal demurrage law, applicable to the entire United States, has long been advocated but stands small chance of being passed because of the doubtful service of such legislation which tends unduly to penalize the carrier.

Track storage is a charge levied in addition to demurrage after the expiration of free time. In some cities as in New York where yard room is limited, it is necessary to make this charge in order to secure expeditious loading and unloading of freight, especially freight of a perishable nature. The charge runs as high as $10 to $12 per day per car.

7. *Off-line freight offices.*—In order to secure business from points not reached by their lines the railroads maintain "off-line" ticket and freight offices. During the War these offices were abolished to save expense but after the armistice they were reestablished, but in many cases, not with their former grandeur. More modest locations were taken and the showy street-level offices which had flourished before the War were not reopened. The off-line agency is a valuable railroad asset as a business getter and enables the railroad to perform a distinct service for the shipper.

The manifold duties of an off-line freight agent is shown by noting the work done by an agent who represented one of the trunk lines at Omaha. He quoted domestic and foreign rates on freight moving over his system, kept files of tariffs and circulars, traced delayed shipments from passing reports he had received of carloads and merchandise moving in and out of Omaha over his trunk line, supervised package car service at Omaha for his line, looked after reconsignments of carload freight, gave exchange bills of lading and adjusted freight claims. In addition he could tell where there had been a crop failure, or a freight embargo and the name of the best terminal delivery at the large cities along the system which he represented. Needless to say when this man resigned from his position his place was not easily filled by the railroad he had represented.

8. *Claims.*—Nothing in connection with transportation causes more vexation and loss of time to the shipper and greater financial losses to the carrier than claims for loss or damage of freight. The carriers of the United States are said to pay a bill of $100,000,000 each year in railroad claims and the express companies add another $50,000,000 to this total. The express companies and railroads are endeavoring to reduce the number of claims thru "pack the right way" campaigns for shippers and thru instructions to their employes on the correct way of handling shipments. A great deal can be done to reduce this unnecessary expense by meeting with railroad employes to discuss the subject and by holding conferences with industrial traffic managers and large shippers.

Beside the expense and loss of time which the shipper incurs in collecting a claim the consignee suffers a disadvantage in not receiving the goods. The shipper is therefore interested equally with the railroad in reducing claims and only by the cooperation of the two parties can a betterment of this situation be brought about.

9. *Classes of claims.*—There are in general four classes of claims. They are: Loss, total or partial; damage, total or partial; delay, causing loss or damage; and overcharge, weight, rate or classification. A known loss refers to any freight which the carrier fails to deliver to the consignee whether on account of its destruction, disappearance, conversion or because it has been so damaged by the carrier as to destroy its value to the consignee. A concealed loss is one not evident at time of delivery by the carrier but is found by the consignee when he proceeds to check off his goods.

Claims for loss or damage may be filed either with the initial carrier or the carrier at destination. If the claim is filed with the carrier at destination it is best to submit the claim to the agent who made the delivery, in order that he may forward it to the adjustment office with the cards and other information which should accompany the claim. If the claim is not filed with the agent of the carrier it should be sent direct to the freight claim agent.

All claims for overcharge should be filed with the agent who collected the charges. This often permits of the immediate correction of the charges by the agent.

Suits may be filed within two years and one day after the refusal of carrier in writing to effect settlement.

10. *Causes for losses.*—One of the main causes of losses of freight during late years has been theft or pilferage. The chairman of the Committee on Theft and Pilferage of the American Manufacturers' Association of the United States in testifying before a sub committee on Marine Insurance of the House Committee on the Merchant Marine and Fisheries, July 18–20, 1921, said, "It is almost a truism to say that the foreign commerce of this country can not go on unless we reduce theft and pilferage; we can not continue to deliver merchandise contrary to the way it is ordered." While losses of this nature are probably greater in foreign than in domestic commerce they are proving themselves a growing menace to the latter and one which steps should be taken to check.

Another cause for losses or damage to freight is poor packing. Faulty marking and careless billing are also responsible for numerous losses. If the shipper would see that the box, bale or other container is of good material and sufficiently strong to stand the strain to be imposed on it and not "trust to luck" to get it thru he would save himself numerous losses. Old containers with the former addresses still visible on them often cause mistakes. Abbreviations in writing destination lead to errors. Losses also result from careless stowing away of goods in cars and in using cars with leaky roofs, or other defects. Goods which are fragile should have containers so marked as "glass," "fragile," "use no hooks," "paper," etc. Shipments properly packed and marked suffer little loss in transit.

11. *Handling claims.*—Shippers and industrial traffic managers have different ways of handling claims. Where there are only a few claims arising in the course of the year it is a matter of little difficulty for a shipper to keep track of them and there is no need of an elaborate system. When claims run up into the thousands there is need for a system. In such cases claims are usually entered in a claim book numerically and crossed off as claims are settled. The claim register book might show the following information: name of railroads, consignee, date, amount of claim, contents, weight, miscellaneous information, date of settlement. For each claim there is prepared an envelop numbered to correspond to the numbers in the claim book and which contains all the data and documents necessary to the claim. An alphabetical file is also prepared which serves as a cross index giving number of the claim. This enables a person to refer to claims by name as well as by number.

REVIEW

Describe trap-car service.

What is meant by "absorbing" a switching charge and why is it done?

Why are freight rates for cities adjacent to New York the same as to that city?

Discuss store-door delivery, setting forth its advantages and disadvantages.

Define demurrage, "free time," actual and constructive placement, notification, reciprocal demurrage, track storage.

Why are off-line ticket offices maintained by the railroads?

Name the general classes of claims and show how a claim for loss or damage is filed.

What system would you, as a shipper, follow in handling a claim?

CHAPTER X

PASSENGER SERVICE

1. *Passenger service compared with freight service.* —Aside from using the same motive power, rails, right of way and in part the same physical equipment the passenger service of American railroads has few points of similarity with the freight service.

The passenger service is kept distinct and has many clearly defined points of difference from the freight service. In the first place passenger trains must be dispatched on schedule, leaving a passenger terminal at a stated time, making certain stops and arriving at destination at the time given. Except for a few special trains the bulk of the freight carried over a railroad does not travel on a time schedule but is made up and moved according to the needs of traffic. Passenger trains, on the other hand, must move when scheduled, whether traffic is offered or not.

A second point of difference is that freight traffic must be "handled"—loaded on at point of shipment, in some cases transferred at a transfer station, and unloaded at destination. Furthermore, freight requires storage facilities at destination in freight sheds or storage warehouses. Passengers on the other hand load and unload themselves, care for themselves in transit, and terminate the service at destination.

Another point of difference is found in the facilities required. Passengers must be carried in comfort and this makes it necessary for railroad companies to provide cars properly lighted and heated and with seating capacity sufficient for the traffic offered. Stations must be maintained for the accommodation of passengers at points along the route, and in the big cities large, well-built and conveniently located terminals must be provided.

The passenger service differs from freight service also in the nature of the competition which it must encounter. In carrying freight one of the principal kinds of competition that the railroad has to meet is that by water. Water transportation has little influence upon passenger rates and is not likely to acquire it because in transporting passengers the charge made for the service is relatively unimportant as compared with the distance and time elements.

As compared with the transport of goods the price of the service is a factor which is relatively unimportant in passenger service. While the fares charged may sometimes act as a deterrent to passenger traffic they do not have the importance that freight rates do in shipping goods. Of greater importance to the passenger is the element of distance. A passenger will usually choose the shortest route between two cities, unless other routes offer scenic or certain other advantages. Passengers, especially business men, regard the time element as of utmost importance. Between important cities special train service with extra fares are sometimes established, as on the fastest trains like the "Broadway Limited" on the Pennsylvania Railroad and the "Century" on the New York Central between New York and Chicago. The extra fare is justified by the additonal costs to the railroad in furnishing a *de luxe* service of this nature.

Finally, the passenger service differs from the freight service in that a passenger not only goes but as a rule returns, either by the same route or by an alternate one, while freight in reaching its destination is not returned unless an error has been made in the shipment or unless it is to be sent back to the point or origin in the form of finished goods. Passenger mileage of a railroad tends toward a balance while, because of the absence of return loads, this is seldom the case with freight.

2. *Relative volume of business.*—It is generally understood that in the conduct of American railroads as a whole the freight business is far more important than the passenger business. Because of the diverse nature of the traffic it is not easy to make a comparison between them on the basis of physical units. It is possible, however, to note the growth in both passenger and freight traffic which has occurred over a considerable period of time. Official figures for the period since 1890, convenient for this purpose, can be found in the Statistical Abstract of the United States.

In 1890 the number of passengers carried on railroads of the United States was 492,430,865 and in 1919, 1,177,820,454, an increase for the latter year of 139.2 per cent over the former. In the same period the tons of freight carried by the railroads increased at a more rapid rate, being 631,740,636 in 1890 and 2,043,229,775 ton in 1919. The increase in tonnage for the latter year over the former is therefore 222.2 per cent.

The figures above given represent only the units of transportation. If distance is added an even greater increase of freight traffic occurs, since freight hauls are commonly longer than passenger miles. Comparing the units of passengers carried one mile and tons of freight carried one mile, the following figures may be noted.

	1890	1919	Increase per cent
Passengers carried one mile	11,847,785,617	46,358,303,740	291.3
Tons of freight carried one mile	364,293,063,017	77,207,047,298	371.8

Another measure of railroad operation is found in train mileage. For passenger trains the mileage of class 1 carriers increased from 285,575,804 miles in 1890, to 539,803,363 miles in 1919, or 88.8 per cent, while for freight trains the mileage increased from 435,170,812 miles to 549,657,072, or 26.2 per cent, in the same period. Thus freight train mileage in 1919 exceeded that of passenger trains by nearly 10 million miles tho the percentage of increase from 1890 to

1919 has been smaller for freight than for passenger trains.

During the period, from 1890–1920 inclusive, not only did the average number of passengers in a train more than double but the length of the journey increased over one-half. A similar situation is found in freight traffic where the average tonnage carried increased over 3¾ times and the length of the haul of the average railway was lengthened by over one-half. The increases for passenger service was especially great for the years 1917 and 1918 while for freight service the increase was more gradual.

3. *Fluctuations in business.*—Like other forms of industry, railroad transportation is naturally affected by the business cycle. In periods of good times more people use the railroads, both for business and pleasure, and ship a larger tonnage of freight than when the country is in the grip of a depression.

Within the last forty years the United States has been visited by panics or business depressions of varying degrees of intensity in 1884, 1893, 1903, 1907 and 1920. However the number of passengers carried on the railroads of the United States for these years or the years following did not decrease except in the year 1894.

Freight traffic over this period shows more frequent and more pronounced fluctuations. Thus in 1894, 1908 and 1921, years which followed crises, a decrease in freight tonnage took place.

Comparing the proportion which passenger receipts bear to the total rail line transportation revenue, the proportion increased during the panic year 1893, and again decidedly in 1894, the proportions being 24.48 per cent for 1892, 24.70 for 1893 and 26.58 for 1894. For the panic year of 1907 passenger receipts formed a smaller proportion of total revenue (21.81 per cent) than in 1906 (21.93 per cent) but again showed a decided increase in 1908 with 23.68 per cent. For the calendar year 1920 passenger receipts formed a smaller proportion of total receipts (20.59 per cent) than for any year subsequent to 1917.

On account of the many elements involved it is difficult to draw any deductions regarding the question as to whether passenger or freight traffic shows greater degrees of fluctuation in times of business depression. A study of figures on both tonnage and revenue points to the conclusion that passenger traffic shows a tendency to feel the effects of depression later than freight traffic and to respond slower to industrial revival. A slight panic has little effect upon passenger business but makes a decided impression upon freight receipts.

4. *Passenger and freight receipts.*—The financial results of passenger and freight receipts are more easily compared than are the physical units of railroad transportation. The financial results do not show the same divergence as physical figures because the return per unit (passenger) is greater in pas-

senger traffic than is the return per unit (ton) in freight traffic. For both passenger and freight traffic the unit of distance is the mile.

Most persons are wont to figure passenger fares at 3 or 3.6 cents per mile. But this is the standard fare modified in the aggregate by the existence of cheaper forms of passenger transportation. On commutation tickets which are the cheapest form of passenger transportation the fare is usually slightly in excess of a cent per mile. Mileage tickets, another form of cheap transportation, issued in books of 1,000 miles bear a rate of 3.24 cents per mile and forms of local tickets usually average about 3.6 cents per mile.

The average revenue per passenger, per mile for class 1 railroads has shown a tendency to increase. Comparing the year 1890 with 1919 the average revenue from this source increased from 2.167 cents to 2.540 cents, an increase of approximately 3⁷⁄₁₀ mills. On the other hand, over this same period, similar figures for freight traffic show an increase from .927 cents to .973 cents or an increase of over 4 mills per ton per mile.

The receipts from passenger traffic for the railroads of the United States as a whole have always formed a smaller proportion of total earnings than those derived from the freight service. Moreover this proportion has shown a tendency to grow smaller when considered over a period of years. Comparing the year 1890 with 1919 the receipts from passenger traffic declined from 24.79 per cent to 22.93 per cent of the total earnings. In these same years the revenue derived from freight traffic increased from 67.93 per cent of the total to 68.84 per cent.

5. *Passenger roads.*—Of 192 class 1 railroads (railroads with operating revenues of over $1,000,000) reporting to the Interstate Commerce Commission for the calendar year 1919 only three derived more revenue from passenger than from freight service. These were the Long Island Railroad, the West Jersey and Seashore, and the Fonda, Johnstown and Gloversville.

The Long Island Railroad, a road owned by the Pennsylvania Railroad, had the greatest proportion of revenue from this source, 64.51 per cent. This railroad runs from New York City to Montauk Point, a distance of 118 miles, thru a territory in which comparatively little manufacturing is carried on and which for a large part of the district is thickly populated by suburban residents.

The Fonda, Johnstown and Gloversville Railroad, a small railroad 76 miles in length operating in northern New York, was second to the Long Island road with 63.62 per cent of its operating revenue derived from passenger traffic.

The West Jersey and Seashore railroad, another company belonging to the Pennsylvania Railroad, was the remaining road deriving a larger amount of earnings from passenger than from freight service. On this railroad in 1919, 62.98 per cent of the earnings were derived from this source. This railroad traverses a section in which little manufacturing is carried on, a large part of the territory being devoted to fruit and vegetable raising. The heavy passenger traffic is due to the fact that Atlantic City and other south Jersey coast resorts are reached over this line.

In former years some of the railroads of New England, notably the New Haven and the Boston and Maine, secured the major part of their revenue from their passenger business. This is no longer the case. In 1890 the New Haven railroad secured 57.48 per cent of its revenue from passenger traffic but in 1919 only 42.16 per cent came from this source. A similar situation in a more marked degree is found on the Boston and Maine which in the former year derived 53.22 per cent of revenue from passenger business and in the latter year only 30.32 per cent from this source.

In contrast with the railroads which derive the larger part of their business from passenger traffic some railroads are known essentially as freight roads. Roads such as the Virginian with 85.03 of its operating revenues in 1919 derived from freight traffic, the Norfolk and Western with 81.48 per cent, the Baltimore and Ohio with 74.91 per cent, the Erie with 76.52 per cent, the Chesapeake and Ohio with 74.25 per cent, the Pennsylvania with 71.30 per cent, and the Chicago and North Western with 68.11 per cent are in this category.

6. *Classes of service.*—It is commonly said that in the United States there is only one kind of passenger

service—first class, with extra privileges in Pullman service. In contrast with European countries where service classes are sharply differentiated this is in the main a correct statement. It overlooks the fact, however, that some of the passenger traffic is carried at reduced fares which sometimes but not always imply inferior accommodations. Among these reduced fare services is the so-called second class on some of the western roads, a term which however has different meanings on different roads. It generally includes what is known as tourist, colonist, and settler service. Another form of reduced fare service is in immigrant traffic, formerly more important than at present. Occasionally a reduced fare service is found in excursion tickets sold at lower than regular rates for travel between specified points on special or prescribed trains. Only a very small proportion of the passenger traffic on American roads however is carried at other than first-class rates. For overnight travel and long distance traffic generally the Pullman service is patronized. This is open only to holders of first-class tickets who, in addition to the regular fare, pay a Pullman charge and a surcharge equal to 50 per cent of the cost of their Pullman tickets. Eastern railroads on many of their runs between principal cities provide chair cars, at an extra charge, for holders of first-class tickets. We have already seen, in a previous section, that many of the railroads also provide a special first-class service of so-called "crack trains" which are faster than their regular scheduled trains and more luxuriously equipped. On these trains an extra fare is charged.

In addition to luxurious service in excess of that offered by other express trains, these special fare trains offer the traveler unusual speed in the journey, and in so far embody the principle that special speed should be especially paid for. On the continent of Europe this principle is more generally recognized. The unit for the computation of fares is the ordinary train and for all express trains a supplementary fare must be paid. The train equipment for the several classes is generally the same on express trains as on ordinary trains, tho the expresses never have any fourth-class carriages and frequently are run without any third-class coaches.

Previous to the War the railroads secured a large amount of business from excursion traffic. Special rates would be made by the railroads to fairs, conventions, summer and winter resorts, places of interest, cities and for innumerable other purposes and reasons. These rates induced many persons to travel who otherwise would have stayed at home. The excursion ticket was almost entirely abolished during the War and is now gradually being reestablished.

7. *Fares and tariffs.*—The factors entering into a passenger fare are in many ways similar to those which determine a freight rate. Just as no exact measurement of all factors is obtainable in a freight rate so in a passenger fare the exact proportion which each fac-

tor bears to the total charge is a matter of speculation, because the majority of costs are joint costs chargeable to the service as a whole. It is known that certain elements must be considered and with these in view the fare is determined. The fare charged must at least equal the cost to the railroad of performing the service and in this cost must be included both line and terminal expense. In passenger fares terminal expense plays a slight part, unlike freight rates, for no matter how great the expense of construction and maintenance of a passenger terminal may be it is relatively insignificant when the cost per passenger is calculated on any proper basis. Moreover, terminal expense in passenger service is largely confined to the erection of the terminal, with only a small allowance for maintenance, while in freight traffic a large amount of equipment is required to move the freight, in addition to the original costs of yards, warehouses and freight terminals.

The demand for the service has a strong influence upon passenger fares. As in the sale of other commodities, if the price of the service is placed too high the public will refuse to patronize the road or patronize it less than if the price were lower. It is the duty of the passenger traffic manager and his department to gauge the demand for passenger service so that the maximum amount of traffic may be secured from the fares set. Whether he has done this or not depends upon the relation which costs of operation and other expenses bear to revenue received. When the expense of operation exceeds two-thirds of the income received steps must be taken to reduce expenses, stimulate traffic or raise rates.

It is fundamental in arriving at a passenger fare to take into consideration the distribution of wealth in the population. A country in which the per capita income is small as in China or India must be granted a comparatively low passenger fare for a large part of its population or otherwise the population will be unable to travel, much as it may desire to do so. Passenger fares must reckon with the competition of rival lines in long distance traffic and with that of the electric interurban road and the motor bus for shorter distances.

The passenger fare is influenced by the volume of traffic. Generally speaking the law of increasing returns applies, the net returns increasing sharply and the expense of hauling each passenger per mile decreasing as the traffic grows in volume. This is the tendency in normal times but rising costs of materials and equipment coupled with rising wages may more than absorb any increases made thru rapid expansion of passenger traffic.

8. *Standard railway fares.*—The basis of charge for passenger fares is the standard rate per mile for first-class accommodation. This unit multiplied by the distance between any two points gives the fare charged. While freight rates taper off with the distance and show by calculation a diminishing

rate per ton mile as the distance increases, this is not the case in passenger traffic where fares are strictly proportional to distance. A slight exception to this general rule is found in transcontinental fares. From any given eastern point they are identical for all destinations on the Pacific Coast, tho these represent somewhat different distances from the point of departure.

In fixing the standard fares railroads are limited by various provisions of law designed to assure that fares shall be reasonable. The Interstate Commerce Commission has the same power over fares that it has over freight rates, to fix maximum and minimum charges. A like power is in many of the states accorded to the State Railway Commission or other regulative body. Some of the states indeed go so far as to fix the maximum fares by statute. Where a maximum fare is established by either procedure the actual fares adopted by the railways are likely to approach it, if not to equal it. The increases in railway fares authorized by the Railroad Administration during the War, and continued after the railroads were returned to their owners, in some instances exceed the maximum fixed by action of state commissions or by state law. The authority of the Interstate Commerce Commission to overrule state regulation has been questioned but in the Wisconsin and the New York rate cases the Supreme Court upheld the provisions of the law.

9. *Actual railway fares.*—In practice the standard railway fares are profoundly modified by a variety of circumstances and conditions.

The first of these is competition. Where two or more railroads have lines between the same points, fares will be uniform without regard to the mileage traversed by the different roads. Thus fares from New York to Chicago, or from the latter city to Kansas City will be the same whatever line is traveled. Within certain limits these competitive fares affect local fares also, since charges to points on the line from the point of departure can not be greater than the charge to the terminal point. Rate cutting in passenger fares is no longer in the former vogue, but it is clear that rates to competitive points will be in the main determined by the line having the shortest route.

It will be remembered that the standard fare relates to first-class service, and by the terms of the definition it is implied that any service less than first class will have a correspondingly reduced rate of fare. The various forms of service below first class, described in section 6, are charged for at lower rates, when such services are offered at all.

Another motive for departing from the standard fare seems to be found in the frequency of travel of the individual who by his purchase of the right to more than one trip secures a reduction on each of them. The most familiar illustration of this principle before the War was the round-trip ticket usually sold at a price equal to 1⅔ times that of a single trip ticket. During the War this privilege was abolished and return-trip tickets when sold cost exactly twice the single fare. In local traffic it was sometimes cheaper to buy two one-way tickets not subject to tax than a return ticket on which a tax had to be paid. Since the railroads have been in private hands again return tickets are being gradually restored.

Much greater is the reduction in fares allowed on the various forms of commutation tickets, monthly tickets of 60 trips for adults and a less number for school children, and fifty or a hundred trip tickets valid for longer periods, usually six months or a year from date of issue. Another form of slightly reduced rate ticket is the mileage book. It is in effect a collection of tickets each good for one mile of travel over the issuing road.

Further considerations which move the railroads to sell tickets at a price below the standard fare might in analogy with merchandising practice be described as wholesale purchases and as bargain sales for tickets for a specified destination. The first parallel is offered by the special rates granted to theatrical troupes on the road, and the special fares which are allowed for attendance upon conventions of various sorts. The second parallel is offered by the special rates, often on special trains, for visits to expositions, state fairs, summer resorts and the like.

Back of all these reductions from the ordinary fare is the economic motive of stimulating traffic and utilizing equipment. No such motive appears in the special rates accorded to clergymen; these rates rest upon social rather than economic considerations.

In the aggregate the number of passengers carried at less than the standard fare is considerable, and this has a marked effect upon the revenue per passenger per mile, which is always appreciably lower than the standard fare.

10. *Baggage service.*—The railroads of the United States and Canada, unlike those of most countries of Europe, carry a certain amount of baggage free. The holder of a first-class ticket is entitled to have 150 pounds of baggage carried free, and for the holder of a half ticket 75 pounds of baggage is carried without charge. Baggage is generally defined to include a traveler's personal belongings but this definition has been broadened to include salesmen's samples, workmen's tool boxes and other articles. One writer on the subject has defined it as including "what a passenger takes with him for his personal use and convenience according to his habits and class of life to which he belongs."

The railroad limits its liability for baggage to $200, and for carriage only over its own line. It is responsible for it only during the time of transportation and for a limited period after its arrival, usually 24 hours. After this period has passed the liability of the railroad is the same as that of a warehouseman, which is that of a prudent person taking due care of his belongings.

Baggage which exceeds 150 pounds in weight is carried as excess baggage subject to a charge, which is based on the price of the ticket. This charge for each 100 pounds or fraction thereof is usually something between one-sixth and one-seventh of the fare paid. No piece of baggage may exceed 250 pounds in weight.

After twenty-four hours has elapsed storage is charged on all baggage, usually 25 cents for the first day and 10 cents for each succeeding day, up to sixty days. A tax is also added to these charges. After a certain time has elapsed unclaimed baggage is sold to pay charges.

11. *Pullman service.*—While experiments in furnishing sleeping cars were made as early as 1836 when a passenger car on the Cumberland Valley railroad was fitted with sleeping berths the modern sleeping car was evolved by George W. Pullman shortly before the close of the Civil War. The car proved successful, others were ordered by the railroads, and in 1867 the Pullman Palace Car Company was organized. Mr. Pullman continued to work out experiments in this type of car and in 1887 designed a vestibuled train. This is not only a safety device protecting the cars from telescoping and furnishing safe passageway the full length of the train but it also reduced the air resistance. The Pullman company continued to develop along two distinct lines, one that of car building at Pullman, near Chicago where Pullman and other forms of freight and passenger cars

were built, the other in the operation of Pullman car equipment furnished to the railroads. In 1899 it took over the business of the Wagner Palace Car Company of Buffalo and shortly afterward absorbed some smaller competitors.

It is customary in most American railroads to operate sleeping cars provided by the Pullman company. While the Canadian roads, and in the United States the Chicago, Milwaukee and St. Paul and the Great Northern provide their own sleepers, this practice has not been generally followed. A number of American railroads, however, are beginning to provide their own dining car and chair car service. The railroads have continued to use the Pullman cars because it has been to their interest to do so. The Pullman Company with its large amount of equipment stands ready to furnish cars whenever and wherever they are needed. This form of travel is fluctuating and seasonal and the railroads do not feel justified in making the extra outlay for such equipment. The Pullman Company can shift cars from one road to another in different parts of the country as travel shifts. Over the standard runs of a number of railroads such as the New York-Washington and New York-Chicago, there is a certain regular demand for Pullman service which can be fairly well estimated and for which it would pay the railroad companies to provide their own equipment.

The Pullman Company operates its cars over the railroads according to contracts made with each company. These contracts differ among the railroads but in general the railroad provides quarters in which Pullman tickets may be sold, carries Pullman conductors and other employes free, repairs cars damaged by accident or negligence or carelessness of its employes, cleans the outside of the cars and pays car mileage on every Pullman car hauled. The amount of mileage paid by the railroad to the Pullman Company is dependent upon the gross earnings of the car and if the car earns a certain agreed amount in the course of a year it is not required that mileage be paid on that car. If it earns more than this amount the railroad receives one-half of the excess. The Pullman Company, on its part, agrees to furnish the railroad with the necessary cars and with the conductors and porters required to operate them.

In addition to the mileage payments which the Pullman Company collects from the railroads it receives also the extra fares that are paid by the passengers. The railroad receives the passenger fare and the 50 per cent surtax which the Interstate Commerce Commission has permitted the railroads to collect on Pullman tickets.

REVIEW

State the chief points of difference between passenger and freight traffic.

How does a period of depression affect the freight service of a railroad; the passenger service?

What form of service yields the greatest revenue to most railroads?

Name the railroads which secure the largest return from passenger service. What are some prominent "freight roads"?

What classes of railroad passenger service are found in the United States?

State the principal factors which enter into a railroad fare.

Compare standard and actual railroad fares.

CHAPTER XI

GOVERNMENT REGULATION OF RATES

1. *Scope of legislation.*—The Transportation Act of 1920 marks the culmination of a series of laws beginning with the Interstate Commerce Act of 1887 by means of which the Federal Government has exercised an increasingly effective and increasingly extensive control over the affairs of the railroads. The authority for such control is found in that provision of the Constitution which gives to Congress the power to regulate commerce between the states. The motives for such legislation have been found in the desire of the government to protect the public at large and the shipper from the favoritism and inequalities which seem inevitably to arise when the railroads are left wholly to their own guidance. The most recent enactments have recognized that former legislation had caused the railroads financial embarrassment and have shown a purpose to relieve it.

The Act of 1920, moreover, has established certain standards of equipment and of service, it has provided machinery for the adjustment of wage disputes, and has regulated the issue of capital securities Thru these extensive powers the railroads tho not wholly deprived of initiative in their management are heavily handicapped in the conduct of their affairs. This has reacted upon the general railway situation which is to be considered in a later chapter. For the present we are concerned with the regulation of rates.

2. *Jurisdiction of the Interstate Commerce Commission.*—In both Federal and state legislation the laws set up certain standards and entrust their application in specific cases to commissions. Thus all rate powers under the Federal statute are exercised by the Interstate Commerce Commission.

Congress could have provided by statute a body of law for the regulation of the railroads but statutes are cumbersome and inelastic; they often lag behind economic and social changes. Hence Congress preferred to delegate authority over the common carriers to the Commission. Nearly every state has a commission with jurisdiction over railroads, but such state commissions are usually limited in the scope of their activities and as a rule their functions are matters of local rather than general interest except when they come into conflict with the Interstate Commerce Commission. Whenever a state commission has prescribed a rate which operates to discriminate against interstate or foreign commerce the Commission may set aside the ruling of the state authority. It may in forming its decision confer with state commissions as to the probable effect of such rate but its judgment in the matter is final.

The jurisdiction of the Interstate Commerce Commission under the Interstate Commerce Act extends to common carriers engaged in the interstate transportation of passengers or property by rail or by rail and water, to the transportation of oil by pipe line or by combination of pipe line and rail or water transportation and to the transmission of intelligence by wire or wireless. The term common carrier thus includes railroads, pipe lines, telegraph, telephone and cable companies. The term railroad includes bridges, lighters, car floats and ferries. Private car lines are also within the Commission's jurisdiction when owned by shippers or companies which are subsidiaries of shippers.

3. *Commission's authority over rates.*—By the Transportation Act of 1920 the Interstate Commerce Commission is given complete regulation over rates. Congress virtually orders the Commission to adjust charges so as to yield a fair return on the value of railroad property either "as a whole or as a whole in each of such rate groups or territories as the Commission may from time to time designate." Rates are to be fixed so as to give an adequate return to the railroads which will permit of their upkeep, natural expansion and a fair return to investors.

The authority of the Commission under the Transportation Act of 1920 includes not only the supervision over maximum rates but that over minimum rates as well. Thru the power to establish the latter the Commission will be able in the future to prevent rate cutting which in the past has proved so disastrous to the railroads.

Again, its power over joint rates has been strengthened. Formerly the Commission could only prescribe the joint rate or charge to be observed as the maximum. It can now prescribe the specific rate that may be charged. Furthermore, while formerly the Commission could not fix the proportion of the joint rate which each participating carrier should receive, except when it had established a thru route and a joint rate and the carriers were unable to agree on the proportion each was to receive, the Commission can now establish these proportions. In so doing the Commission is required to make proper allowance for the efficiency of operation of the carriers concerned, the revenues they require for operation, taxes and a fair return upon their properties, the importance of the service, whether the carriers are originating, intermediate or delivery lines and any other conditions, excluding mileage, which would entitle one carrier to a larger or smaller proportion of the haul than the others. This provision will enable the Commission to help the weaker lines and also the lines acting as terminal railroads. As the majority of railroad business is concerned with interline hauls the Commission is thus enabled to extend its regulating power to the most important class of rates.

In addition to its powers over interstate rates the Commission is also given certain powers over intrastate rates. For many years conflicts have frequently arisen over the charges allowed in intrastate commerce as compared with similar charges in interstate commerce. The celebrated Shreveport case in which the Texas Commission established rates on intrastate traffic which were prejudicial to certain interstate rates from Louisiana to points in Texas is a case in point. The Commission has not been given power to establish rates on all intrastate traffic but it is authorized to establish such rates when those fixed by state authority should prove to be discriminatory against interstate or foreign commerce.

4. *How the Commission functions.*—The first work of the Commission is to redress grievances, tho much of its activity is designed to prevent them. In the redress of grievances the Commission may receive the complaint of any person, business concern or other organization or of a common carrier that an individual or joint rate, fare or charge or an individual or joint classification, regulation or practice is unjust, unreasonable, discriminatory, unduly preferential or otherwise violates the Interstate Commerce Act. Upon a hearing of such complaint it may decide what is just and reasonable in the premises and order the carrier to observe such decision and desist from enforcing the previous rules in the matter.

In its jurisdiction over rates the Commission has been called upon in many instances to grant what is known as "fourth section relief" from the "long and short haul clause" of the Act which for many years has been a veritable storm center. This provision was originally intended to break up the discrimination that the railroads were showing in favor of thru traffic destined to competitive points as against traffic to intermediate points which was charged higher rates. The clause made it "unlawful for any common carrier subject to the provisions of this Act to charge or receive any greater compensation in the aggregate for the transportation of passengers or of like kind of property, under substantially similar circumstances and conditions, for a shorter than for a longer distance over the same line, in the same direction, the shorter being included within the longer distance."

The Commission was given power to suspend this section, after investigation, in order that carriers should not lose traffic at competitive points. The courts further tended to nullify this section by holding that it held good only when circumstances and conditions were substantially similar. In the revision which this section underwent in 1910 this phrase was omitted and any departure from the provisions of the clause was permitted only on the authority of the Commission. Such permission was, however, granted in many instances since the Commission recognized the economic importance of competitive points, particularly of those influenced by water competition.

The section as it stands in the Transportation Act still permits the Commission to relieve a carrier from the rigidness of the provision but the Commission may not permit a charge to or from a more distant point that is not reasonably compensatory.

If relief is granted because of the circuitous route of the petitioning line, higher rates shall not be applied to intermediate points to which the haul of the petitioning line is not longer than the direct route. For example, the route from A to B is 100 miles direct or 125 miles by way of C (Figure 3). At the point C which is 100 miles from A the petitioning railroad wishes to charge a higher rate of $1.25. This provision would forbid such a charge being greater from A to C than from A to B. Points on the line, however, between C and B could be charged a higher rate because they are not only non-competitive but also a greater distance from A than is B by the direct line.

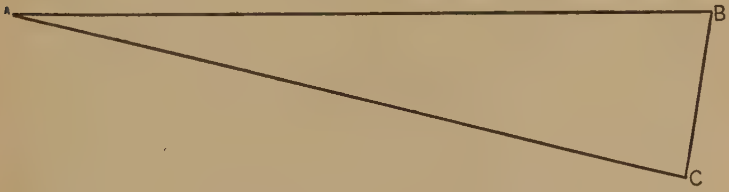

Figure 3. Long and Short Hauls.

The Commission is forbidden to grant relief from the 4th section of the Act when merely potential water competition is anticipated. The actual existence of such competition must be proved.

After the War, the movement of traffic by water between the Pacific and Atlantic coasts, via the Panama Canal, greatly increased because the water route offered lower rates than the railroads. The railroads filed applications for relief from this situation and asked permission to establish rates from the Atlantic seaboard and Gulf ports and from Pacific Coast terminals to certain of the Atlantic ports which should be lower than rates from and to intermediate points. In 1922, hearings were being conducted on this subject at intermountain and Pacific Coast cities.

Another power granted to the Commission has been to determine questions of fact on application of a railroad or other common carrier as to whether competition exists between a railroad and vessels which are being operated thru the Panama Canal. The Act forbids a railroad or common carrier from owning or having any interest in any common carrier by water operated thru the Canal and with which it competes for traffic. The Commission may on its own motion or on the application of a shipper institute proceedings to inquire into the operation of any vessel in use by a railroad or other carrier which has not applied to the Commission to have the question of competition determined. The Commission's order in this case is final.

Finally, if any carrier does anything which the Act declares unlawful or neglects to do anything which the Act prescribes and which results in injury to any person, the injured party may either make complaint to the Commission, by petition, or bring suit in his own behalf. The Commission, if the former practice is chosen, shall call upon the carrier to satisfy the complaint or to answer it. If the Commission deems it necessary it may make an investigation of the matter in such a way as it sees fit.

5. *Preventing grievances.*—One of the most effective parts of the Commission's work lies in forestalling grievances before a complaint is made. In virtually all cases where the Commission is given the right to make investigations on complaint of a carrier or shipper it can do so on its own motion. This applies, among other things, to individual and joint rates, fares, charges or classifications which it believes to be unjust, discriminatory or preferential.

Whether the case comes before it by complaint or by its own action the Commission may in any investigation of an individual or joint rate, fare, charge or individual or joint classification, regulation or practice of the railroads, suspend the operation of such schedule pending a hearing, for a period up to 120 days beyond the time it would otherwise go into effect. If the hearing can not be completed within the time allotted, a further extension of thirty days is given. In the case of an increase in a freight rate the Commission may require the carrier to keep a detailed account of revenues accruing from the rate "specifying by whom and in whose behalf such amounts are paid," so that should a decision adverse to the carrier be handed down the carrier may refund with interest to the proper parties the charges not justified.

6. *Procedure—informal complaints.*—Complaints made to the Commission are of two kinds, informal

and formal. The number of informal complaints received by the Commission for the year ended October 31, 1921, was 7,811, an increase of 3,603 over the previous year. Formal complaints numbered 1,487, of which number 1,021 were disposed of.

Informal complaints are made by letter and are filed in the order in which they are received. The Commission takes the matter up by correspondence with the carrier and endeavors to secure a settlement without a hearing.

Altho the Commission prescribes no form for an informal complaint it must contain certain information such as the name and address of the complainant, the name or names of carriers against which the complaint has been made, a statement as to when, where and how the Act has been violated by the carrier or carriers, sufficient data to identify the shipment or other service on which recovery is sought, the kind and amount of injury sustained, when and by whom, whether recovery is sought for parties other than the complainant and the reasons for complaining in their behalf, and a petition for relief. A sufficient number of copies must be presented to enable the Commission to furnish one to each carrier. Supporting papers may accompany the claim.

All complaints for recovery of damages must be filed within two years and not later, unless the carrier after the expiration of that time, or within 90 days of it, begins an action for recovery of charges in respect of the same service, when the time is extended for 90 days from the time such action is begun. In either case the cause of action concerning a shipment of property accrues on delivery or tender of delivery by the carrier, and not after.

If for any reason an informal complaint for recovery of damages can not be accepted, is denied or withdrawn the parties are notified by the Commission. The filing of an informal complaint does not preclude the right of a complainant to file and prosecute a formal complaint, at which time the informal complaint is withdrawn. The Commission endeavors wherever possible to obtain informal complaints from complainants and in a large number of cases has found such procedure effective in obtaining settlement.

7. *Procedure—formal complaints.*—When the Commission has accepted a formal complaint against a common carrier a copy of the complaint is sent the carrier. An answer must be filed within 20 days except for defendants having general offices at or west of El Paso, Salt Lake City or Spokane, when the period for filing is extended to 30 days. The Commission shortens or extends this period if it deems this desirable.

On receiving the answer of the carrier, or on his failure to file an answer, the Commission sets a time and place for a hearing before an examiner, unless the testimony is to be taken by deposition.

Hearings are usually held before an examiner assigned to the territory in which the complainant has his place of business. Occasionally a member of the

Commission may carry on investigations and take testimony, and in the early days of the Commission this was the rule. Of late years the Commission's work has become so heavy that the taking of testimony and other matters connected with hearings has been delegated almost entirely to the examiners.

At the hearing, each side, if it so desires, may file briefs and supporting documents within the time set by the examiner. Testimony is taken orally. If oral argument is to be made and the examiner so notified he will hear the parties at the close of the testimony. This enables those who desire it to argue their cases while the evidence is clear in their minds, saves them the expense incident to argument at Washington or to the preparation and filing of briefs.

The complainant opens and closes the hearing in cases in which relief under the Act is sought. In investigation and suspension cases the respondent opens and closes the hearing. In all other cases the Commission opens and closes unless a different order of procedure has been determined by the Commission or by the examiner in charge.

After expiration of the time set for briefs the examiner prepares his report containing a statement of the issues and facts involved, and his findings and conclusions. This report is mailed to the attorneys of record of both parties. Within 20 days after the examiner's report has been made, either party may file and serve exceptions and a brief in support of the exceptions. Application for an oral argument before the

Commission may be made at that time. The case, if accepted, is given personal consideration by the Commission and later submitted to deliberation in conference.

Unless exceptions are sustained or errors found in the report of the examiner, his statement of the issues involved and the facts brought out are taken by the Commission as the basis of any action it may take.

8. *How Commission's decisions are made binding.*—If after a hearing on complaint the Commission decides that the complainant is entitled to an award of damages the Commission makes an order directing the carrier to pay the complainant a certain sum by a specified date. If the carrier refuses or neglects to do so the complainant may file in the United States Circuit Court, in the district in which he resides or in which the principal operating office of the carrier is located, or in any state court, a petition giving his reasons for claiming damages and the order of the Commission. The order of the Commission shall be considered prima facie evidence in the suit.

Every carrier, its officers, agents, receivers, trustees or lessees which neglects to obey an order of the Commission made under the provisions of sections 3, 13 or 15 of the Act of 1920 is subject to a fine of $5000 for such offense. Every violation is considered a separate offense and if continued each day is taken as a separate offense.

9. *Publicity of rates.*—One of the most effective powers wielded by the Commission is that which

comes from the publicity which it gives to its actions and to the operations of the railroads. It has established the principle that such operations are matters of public interest, and has provided that the shipping public should have the freest possible access to all information which directly concerns it.

Every carrier is required to file with the Commission and keep open to public inspection schedules of rates, fares and charges over its own line and over other lines with which thru routes and joint rates have been established. Schedules are to give the points between which passengers and freight are carried, the classification of freight, and state separately terminal, storage, icing and other charges required by the Commission, all privileges and facilities granted and any rules or regulations affecting the rates, fares or charges. The schedule must be printed and two copies are required to be posted in prominent places whereever freight or passengers are received.

No change shall be made in any individual or joint rate, fare or charge except on 30 days' notice to the Commission and to the public and such changes shall be shown upon new schedules or indicated upon old ones. The Commission is given discretion to lessen the time required for changes in schedules and to modify the requirements for publishing, posting and filing of tariffs in particular instances or to meet certain conditions arising. It may also permit an amendment or change in a rate, fare, charge or classification without requiring the filing of the complete schedule.

We have seen in a previous chapter that all carriers parties to a joint tariff should file concurrences with the Commission and that one of the number should file the schedule itself. Copies of all contracts and agreements relating to traffic, made by one carrier with others, must also be filed.

10. *Statistics and accounts.*—From its inception the Commission has gathered and published statistics of railways which give detailed information regarding the status and operations of the railway system as a whole, and of individual roads. In order that this information may be uniform and valuable the Commission is given extensive authority over railway accounts and records.

The Commission prescribes the form in which the railroads shall keep their accounts, records and memoranda of movement of traffic and the receipts and expenditure of money. In order that there may be no juggling of accounts the Commission is instructed to prescribe the classes of property for which depreciation charges may be included under operating expenses and percentage of depreciation to be charged against each class of property. The Commission also is given access to all accounts, records, memoranda, documents, papers and correspondence of the carriers. By means of its power to prescribe a uniform system of accounts for the carriers the Commission has been able to secure sufficient publicity of railroad operations to protect the investing public as well as to help it in its rate-making functions.

11. *Physical valuations.*—A work entrusted to the Commission which is germane to the adjustment of rates is that of physical valuation. It is the purpose of such valuation to inform the Commission and the public in regard to one of the elements which enters into rates (see Chapter III).

Beginning in 1913 the Commission has been engaged upon the monumental task of determining the physical valuation of railroad properties of the United States. The Commission is to determine for each railroad the original cost to date, the cost of reproduction, new, the cost less depreciation, the original cost and present value of lands, rights of way and terminals, the amount and value of any aid, gift, grant of right of way made by Federal, state, county or municipal government, individuals or associations, the amount derived from the sale of such grants and value of the unsold portions when acquired and at present. The value of the railroad property is to be reported and classified by states. The Commission is to prescribe the method of procedure to be followed in conducting the investigation and the form in which the reports are to be submitted.

The work of the Bureau of Valuation is nearing completion. The field work of the various divisions of the Bureau is almost finished and tentative valuations have already been issued for 193 roads. Following the completion of this work hearings will be held by the Commission to hear protests of the carriers against the valuations arrived at, after which modifications may be made. The final reports on the properties of the individual carriers will then be published.

The valuations agreed upon are to be kept up to date and made the basis on which rates for railroads are determined. Until this work is completed the Commission will have to depend upon an estimate of property value. The Commission in exercising its power of determining reasonable rates

> "shall initiate, modify, establish or adjust such rates so that carriers as a whole (or as a whole in each of such rate groups or territories as the Commission may from time to time designate) will, under honest, efficient and economical management and reasonable expenditures for maintenance of way, structures and equipment, earn an aggregate annual net railway operating income equal, as nearly as may be, to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation: Provided, that the Commission shall have reasonable latitude to modify or adjust any particular rate which it may find to be unjust or unreasonable, and to prescribe different rates for different sections of the country."

In determining the rate of return for the carriers the Commission is to give consideration "to the transportation needs of the country and the necessity (under honest, efficient and economical management of existing transportation facilities) of enlarging such facilities in order to provide the people of the United States with adequate transportation."

12. *Water transportation.*—Carriers by water under United States registry, engaged in foreign commerce, are now required to file schedules with the Commission showing (1) the points of trading; (2) dates for receiving freight and sailing dates; (3) route, itinerary and ports of call. Any change in schedule must be filed with the Commission. The Commission is to publish the schedules furnished by the water carriers and furnish them to the railroads to be distributed to agents in towns specified by the Commission for the information of those interested in foreign trade.

The Commission may also "in such manner as will preserve for the carrier by water the protection of limited liability make such rules and regulations not inconsistent herewith as will prescribe the form of such thru bill of lading." On April 10, 1919, the Commission (in Alaska S. S. Co., vs. U. S. 259 Fed., 713) drew up a uniform domestic and a uniform foreign bill of lading which were enjoined by the courts but the decision was reversed by the Supreme Court. On reopening the case August 7, 1920 a form of export bill of lading was drawn by the Commission which was to be issued by carriers for the transportation of property from points in the United States to nonadjacent foreign countries in connection with ocean carriers whose vessels are under United States registry. The Commission later made this effective.

REVIEW

What is the scope of the jurisdiction of the Interstate Commerce Commission?

What authority has the Commission over railroad rates? Over intrastate rates?

What is the purpose of the "long and short haul clause" of the Interstate Commerce Act? When may relief from it be granted?

How are informal complaints made to the Commission? What must be set forth in a formal complaint? Can both formal and informal complaints be filed?

What is the form of procedure in a formal complaint?

How are the decisions of the Commission made binding?

What is the physical valuation of railroads and what is its status?

CHAPTER XII

LOCAL RAIL TRANSPORTATION

1. *Short-haul competition.*—In the carriage of freight and passengers both for long distances and for short ones the railroad was for a long time supreme. Later years have brought forward competitors for the short-haul traffic which must be reckoned with. In freight transportation the motor truck, which is to be considered in detail in a later chapter, is in certain localities an effective competitor. Of an earlier date is the competition of electric rail lines. While this sometimes extends in a limited way to the carriage of local freight and mails, it is chiefly in passenger traffic that the activities of the electric lines touch those of the railroad and sometimes encroach upon them.

Since the average passenger journey on the railroads is 39 miles it can readily be seen that in the making up of the averages there must be a very large number of hauls of comparatively short distances, say ten or twelve miles. One can not state in precise figures the limits within which the electric line can conveniently compete with the steam railroad but experience has shown clearly that for these very short distances good electric service will secure a considerable share of the traffic.

2. *City and suburban lines.*—The electric railroad is of course primarily a city institution for passenger traffic within cities and as such it occupies a field entirely distinct from that of the steam roads. The rapid growth of cities in recent decades has gone hand in hand with the development of traction facilities. The lines of the electric roads have been extended from city centers to suburban points which a few years ago were dependent upon the railroads alone, and the intervening territory has filled up with settlements. Or in other cases the extension of the lines has carried the population with it and as they grew further and further away from the city centers new suburbs have arisen.

Whether, in cases where steam railroad lines and electric lines serve the same district, the former have actually lost any suburban business is somewhat doubtful. Certain it is, however, that the enormous new business resulting from suburban development has gone almost entirely to the electric lines.

The first appearance of this competitive service in suburban traffic gave the railroads much concern. Some of them attempted to meet it by increasing the number of trains and reducing fares; and when this was done the railroads were able in the main to retain their accustomed volume of traffic tho its profitableness diminished. In other cases the roads made no attempt to meet competition in rates and as the traffic fell off they reduced the number of trains. They were content to serve a somewhat diminished number of patrons, who because of the greater speed and comfort of railway travel were willing to pay an extra price for it.

In the suburban passenger movement the electric line has as a rule offered lower rates of fare, certainly for single trip fares. It has also offered certain conveniences in travel which outweigh the inconveniences. The line is frequently much more accessible to the residence and place of business of the patron than are the railway terminals. While the time required in travel by the city street cars with their frequent stops is longer, and while the comfort of travel is less, yet for comparatively short distances patrons are willing to put up with such inconvenience rather than patronize the more expensive and often out-of-the-way railway trains.

3. *Interurban lines.*—The success of the electric lines in city and suburban traffic led them to look for further fields to conquer and brought about the gradual extension of the lines to interurban service. At first the electric lines outside of cities made no attempt to compete with the railroads but laid their lines into districts where there was no rail competition. In many cases these lines served as feeders to railway lines, bringing passengers to places where they could secure railroad connections. It was not long however before the owners of electric lines cast about for more business and it was then that they began to parallel the steam lines between terminal cities in order to secure a share of the passenger traffic.

During the years 1893 to 1896 many electric lines felt the effects of depression and went into receivers' hands. With the revival of business conditions the electric lines underwent a steady development to keep pace with the growing demands of traffic. New and longer lines were built. New cars were equipped with heavy motors, automatic brakes and seated a large number of passengers. Private rights of way between terminal points were secured. Heavier rails were laid between stone-ballasted tracks, block signals installed and trains dispatched on regular schedules with fixed station stops. The electric line had already begun to take a page from the railroad book and imitated railroad operation and practice. In view of this fact it is not surprising that the electric interurban soon began to win away much of the passenger business from its railroad competitor. In fact whenever an electric line was made to parallel a steam one the passenger business of that section automatically gravitated to the electric, provided the service was as good as that given by its competitor.

The steam railroads feeling the loss of business naturally regarded the development of electric lines with a jealous eye and took various methods to combat it. In some instances the railroads cut passenger service to a minimum or took steps to abandon it altogether. In others they bought up the electric lines and operated or abandoned them. In still other cases they electrified branch lines to forestall competition or to meet it. Recently both electric and steam lines have suffered from the competition of the motor bus and have joined forces to devise means for overcoming this new competitor in the field of passenger transportation.

4. *Extent and nature of competition.*—Just how far the electric lines may be deemed to be in competition with the steam railroads can not be accurately estimated because of the difficulty of separating suburban from purely city service. It is however interesting to note that in 1917 when the Bureau of the Census made its last report on electric lines there were 18,000 miles of interurban lines.

Generally speaking the interurban lines have less mileage than city and suburban systems, being on the average for the United States in the ratio of 2 to 3. In the eastern states of the upper Mississippi Valley however this relation is reversed and the interurban lines have nearly 60 per cent of the total electric rail mileage.

While as already pointed out, the competition of the local electric line with the railroad is predominantly in passenger traffic, rivalry in freight traffic is not excluded.

5. *Freight service of electric roads.*—In the freight service, competition has been less marked and has never assumed the importance it has in passenger traffic. It is, nevertheless, a factor with which the steam roads have had to reckon and one which in certain sections of the country, as in the central West and on the Pacific Coast, has become of increasing importance. In suburban service the electric lines

soon began to carry small packages for the convenience of patrons, allowing them to be placed in the car vestibule. The interurban electric, however, made provision for mail and express matter from the start. The public was quick to appreciate the value of this service and provision was made to handle it. Compartments in the forward parts of cars were made to carry express, baggage and package freight. Cars were also built for the handling of such perishable freight as fruit, meats, dairy and farm products and in some instances flat cars were designed to be used as trailers in transporting lumber, coal, sand and other bulk commodities.

To estimate the relative importance of the freight movement is somewhat difficult since on so large a part of the electrically operated lines—in cities and their suburbs—freight is not carried. It may be noted, however, that about one-tenth of all the revenue producing cars in the service of all the electric lines are freight cars.

Generally speaking there is little competition in rates. The policies of the companies have been to keep passenger fares at about the same level as those of the steam railroads. As to freight rates there are many instances in which the interurban rates are higher than those of the steam roads. In other words both in passenger and freight movement the competition is in service rather than in price.

6. *Effect on the railroads.*—The short haul both in passenger and in freight service has become a knotty

problem for the railroads to solve. With the coming of the interurban electric line we have seen that most of the local passenger traffic formerly carried by the railroads has gone to this transportation agency. The advent of the motor bus and the motor truck complicated the situation, robbing the railroad of a large part of its local freight and competing actively with the rail and electric lines for passenger traffic. Some of the railroads claim that they are glad that the motor truck has deprived them of the short-haul business which is far less profitable than thru freight.

In local passenger service over branch lines the railroads have in some cases experimented with the gasoline driven type of passenger car and have found that it met all requirements, furnishing a flexible service easily adapted to the needs of the railroad's patrons and being operated at a cost lower than that of the steam train. This type of car is already in successful competition with the motor bus over some branch lines of one New England railroad.

The electrification of railroad lines has been amply demonstrated as feasible from an engineering standpoint, but not always so clearly from a financial one. It differs in individual cases. Where water power is available near mountain grades, electrification has everything in its favor. This is instanced by the case of the Chicago, Milwaukee and St. Paul Railroad which to overcome the extremely high cost of operation on heavy mountain grades electrified its divisions passing thru mountainous regions.

A number of railroad lines like the Pennsylvania, Long Island, New York Central and New Haven have electrified their roads for some distances out ot their large terminals. Electric traction has enabled railroads to haul trains at higher rates of speed and with greater continuous pulling power than steam furnishes, thus enlarging terminal and trackage facilities. The initial cost of installation is high; power houses must be provided, and old equipment scrapped. Where railroads have been electrified and suburban trains operated on the multiple-unit system, as on the Long Island Railroad, it has been found that a large volume of traffic is secured due to the improved service resulting and to the natural growth in suburban population. With electric trains operated as separate or multiple units the railroad is brought once again into successful competition with other forms of electric traction.

REVIEW

How did the railroads meet the competition brought about by the electric suburban and interurban lines?

Discuss the freight service of electric roads.

What aspect does competition between electric and steam lines take?

What will probably be the outcome of the short haul problem of the railroads?

CHAPTER XIII

HIGHWAY TRAFFIC

1. *Place of the highways.*—A few years ago one would hardly have looked for a chapter on highways in a volume devoted to the transportation of freight and passengers. Highways were then regarded merely as an adjunct to other forms of transportation, but in recent years the motor truck has in certain fields made them competitors of other forms.

The motor truck is even newer than the automobile. The federal manufacturing census of 1909 revealed the production of 3,225 trucks. Five years later production had risen to 25,000 annually and ten years later to 322,000 every year.

At first used for delivery purposes and local hauling in cities and their suburbs, the motor truck in the early stages of the Great War began to be used in carrying freight from manufacturing concerns to large cities some miles distant. The severe winter of 1917-18 combined with the enormous demand for service brought the railroad system nearly to a state of collapse and gave the motor truck a real test of its efficiency. It proved to be reliable, speedy and economical for short hauls of approximately one hundred miles in length.

The experience gained in the stress of war has not been lost. In short haul traffic the motor truck is not only a private carrier of increasing importance, but is daily assuming the rôle of a common carrier. In the beginning the motor truck cruised on the highways with much the same freedom of movement as the tramp steamer on the ocean, but this is giving place more and more to the regular schedules which characterize on the ocean the established steamship lines.

2. *Road bed and motor truck equipment.*—The analogy with water transportation can profitably be pushed a bit further. In the one case nature, in the other man furnishes the road bed without cost to the navigator. At the present time at least the motor truck uses the highways without special charge. The burden of maintaining them is shouldered by the taxpayers. It is true that the motor truck owner must pay for his license but it is small in comparison with the benefit he receives from the free and unrestricted use of the highway. Mutterings are heard that he is ruining the highways, that the latter were not intended for his heavy loads and that he is making their upkeep a greater burden upon the community at large. It is not impossible that this sentiment will crystallize in an effort to make the motor truck owner, thru a heavier license fee or other taxation, pay more largely than at present for the damage he does.

Again our analogy with water transportation holds good in that the chief investment in this business is in the vehicle itself. So far as it competes with the railroad it avoids the cost not only of the road bed but also of the expensive trackage and buildings which rail transportation requires at its terminals.

3. *Advantages of the motor truck.*—The service offered by motor truck transportation companies can be compared on the one hand with railway freight service on the other with express service.

As we have seen, shipping by freight except in large quantities usually involves three distinct operations, hauling by the shipper to the freight yard, the railroad haul to destination and hauling by the consignee to his place of business. These various handlings are a considerable element of cost and this element is relatively the more important the shorter the haul. Motor truck transportation eliminates the intermediate handling, gathers the goods at the shipper's door, and delivers them at the consignee's door. It provides a pick-up as well as a store-door delivery.

It is true that the railway express company frequently performs the same service, but this is not the case in localities where only a small amount of express matter is received or delivered. Where the express company gives the service it involves an equal number of handlings as in the case of freight shipments. It relieves both shipper and consignee of the responsibility, but not of the cost of handling the goods.

Of course we must reckon in the cost of handling the goods not only the manual labor which is involved, but the expense of providing and maintaining the terminals of the railroads. In view of all these expenses taken together railroad authorities assert that freight hauled for short distances—estimates vary from 20 to 80 miles—is carried with little profit to the railroads.

Comparing the motor truck service for short distances with freight we usually find another notable saving—that of time. If the comparison be made with express service there is of course a lesser saving of time.

Comparative costs of door-to-door delivery, First class L. C. L. freight between points enumerated.

To New York City	Distance (Miles)	Rail Transportation (Cost per 100 pounds of freight)		Motor Truck Rates [2]	Time in Transit (hours)	
		Freight Rates	Total Delivery Costs [1]		Rail	Motor Truck [3]
New Rochelle, N. Y.	17	42c	$1.03	$ .25	24	3
Stamford, Conn. . . .	34	48c	1.10	.60	24	4½
Bridgeport, Conn . .	57	56c	1.20	.75	48	7
New Haven, Conn. .	74	63c	1.28	1.10	120	12
Hartford, Conn. . . .	109	59c	1.23	.80	48	8½
New London, Conn.	127	70c	1.36	1.30	120	14
Springfield, Mass. .	150	63c	1.28	1.50	168	16
Providence	185	74c	1.41	1.90	96	20
Gloucester	201	85c	1.54	2.00	168	21
Fall River	220	74c	1.41	2.20	120	23
Boston	233	74c	1.41	2.40	96	25
Lowell	259	79c	1.46	2.60	168	27

[1] Includes teaming charges at both ends 30c, extra boxing 24c and extra freight charge on increased weight of boxing, 17 per cent of freight rate.

[2] Trucking Association figures, 1920.

[3] Loading and unloading time of 1 hour, plus running time of 10 miles an hour.

That motor truck transportation for short haul traffic is both quicker and cheaper than freight service is shown in the table on page 229 prepared by Mr. Francis W. Davis of Buffalo for the Automobile Chamber of Commerce. In order that the figures may be strictly comparable freight charges include the teaming costs at both ends.

The table shows thruout a decided advantage in speed for the motor truck. Because of the frequent stopping of freight trains for switching purposes they rarely travel more than 30 miles a day. A motor truck is an independent unit of transportation and proceeds on its way unhindered.

In the matter of rates the table shows that for distances of less than about 125 miles costs are greater by train than by motor truck. To this consideration of cheapness must be added also the greater convenience of the motor truck in matters of packing and handling. Some of the advantages of the motor truck may be summarized:

(a) It is not confined to a track or detained in freight yards.

(b) It is not subject to the tie ups and congestion of railway transportation.

(c) It gives direct delivery which means cheaper rates and less liability for damage on account of a single handling of the goods.

(d) It saves time, permitting a speed, ranging according to the nature of the road and topography, of from 10 to 20 miles an hour.

(e) It can effectively supplement all forms of transportation without requiring more than one transhipment.

4. *Motor transportation.*—Experience has established the motor truck as an important auxiliary in the transportation of goods and it remains to consider what forms of service it is now rendering and how they are related to the other transportation forms and agencies. These may be summarized as follows:

(a) Private trucking has considerably extended its area of operations. In so doing it has deprived the railroad of freight that it would otherwise have carried and made some inroads on railway revenue.

(b) Trucking companies have established lines as common carriers in districts served by the railroads and compete with the latter for the freight traffic within those districts.

(c) Similar companies have been established in districts where there is practically no railroad service. If in the former case the trucking companies share freight receipts with the railroad, in the case now under consideration they act as obstacles to future railroad development.

(d) In many cases the motor truck does not serve the market directly but delivers its freight to the railroad for further transportation. It thus may act as a feeder to the railroad and facilitate the bringing of products to the general markets.

5. *Private trucking.*—When a private citizen was obliged to move his household goods from New Rochelle, New York, to Montclair, New Jersey, he formerly packed them in wagons and delivered them to the railroad at New Rochelle. They had to be removed from the van, loaded on the freight cars and hauled to the freight yard in Montclair. Then they were unloaded and reloaded on a van and taken to the new home in Montclair. Nowadays they are

packed in a motor truck at the New Rochelle house and delivered by the same truck at the Montclair address. This is infinitely more simple and convenient than the older method and may not be more costly.

Manufacturers and other business men have availed themselves of the same advantages. Large concerns operate their own trucks. They use them to bring the raw materials to the factories and to take the finished products either to their customers or to shipping points. This is of course merely an extension of their former teaming service. A manufacturer in Taunton, Massachusettes, for example might in former times have bought and sold in Boston, and hauled his goods between the freight yard in Taunton and his factory. The motor truck has enabled him to collect and deliver his goods in Boston itself.

Within certain distances motor truck service of this nature is probably somewhat less costly than freight service. But its chief advantages undoubtedly lie in the fact that the manufacturer has the transportation of his goods entirely under his own control and regulation, and that the service is much quicker. Because of this fact and because the railroads are frequently congested, such use of the motor truck has become widespread. In times of railroad emergency, as frequently happened during the period of the War, such transportation has been extended to distances far greater than those which could under normal circumstances be economically operated. Thus one of the rubber companies in Akron for a time maintained a service with their own trucks and for their own purposes between that city and Boston.

6. *Special phases of private trucking.*—The householder referred to in the preceding paragraph did not, like the manufacturer, own the trucks that performed the service. The ownership has in neither case any bearing upon the fact that transportation was effected without recourse to the railroad.

The use of the truck by the owner for his own purposes is the simplest form of private trucking. Whether there is one owner or several is immaterial as to the service performed, tho the adjustments among a group of owners always raise difficulties which must be settled by some definite form of organization. An interesting illustration of multiple ownership is found in a "Farmers' Cooperative Company" conducted by a group of farmers living in Harford County, Maryland. They operate successfully a daily motor service to Baltimore, and the conduct of their operations offers some interesting phases of organization and management. But since their service is limited to their own members, their operations are just as much those of private trucking as the operations of the New England manufacturer.

But, as in the movement of household goods referred to, much trucking is done for others by individuals and companies who make their business the transportation of goods for hire. Their activity has been something like that of the livery-stable keeper who hired conveyances for any trips which the customers might desire, but was led to establish a regular bus line, say between the station and the town. In similar fashion the trucking companies in addition to their usual business were led to establish regular transportation lines over certain routes, a phase of the business which must now be considered.

7. *Motor truck express.*—A general trucking business in spite of occasional opportunities for longer hauls is likely to be somewhat restricted in the area of its operations. When goods are taken for transportation under special contract, trucks are usually returned empty to their starting point. This must of course be reckoned with in the charge for the service and helps to make it costly. Obviously the charges could be lowered if there was any prospect of a return load.

It is to obtain this advantage that regular motor truck express lines operating on a definite schedule between certain points have been established in many parts of the country. Thus in a service established between New York and Philadelphia, the trucks leave the terminals every evening, travel by night and reach their destinations in the early hours of the morning before business has begun for the day. The traffic movement in both directions keeps the equipment in constant productive use.

The trucks used in this interurban transportation are large and expensive and it can readily be understood that if the freight had to be picked up at many points and delivered to an equal number it might not be profitable to use the large trucks for that purpose. Therefore some of these companies use smaller trucks for pick-up and delivery purposes. When this becomes necessary they have to reckon with the costs of handling which are entailed, and this diminishes the advantage which they have over railroad freight traffic. This is one of the problems which limit the application of the service, and which must be worked out by experience.

A railroad necessarily monopolizes its own tracks. A motor trucking company can not monopolize the public highway. Consequently there is room for competition in this service, and several companies often operate over the same route. One result is that the units of operation are much smaller, and thus far the work can receive the personal supervision and direction of its owners to a degree not possible with a railroad enterprise.

8. *Common carriers.*—These regularly established lines, working on a schedule and hauling freight at fixed rates, emerge from the class of strictly private business enterprises and become common carriers. As such they become subject to government regulation.

The power of regulation has not yet been conferred by Congress on the Interstate Commerce Commission, tho it is not unlikely to come, nor has the business in all the states been placed under supervision of the public service commission. But where the latter body exercises its supervision over motor truck common carriers, classifications and rates must receive approval, and the operation of a motor truck express service requires much of the formality needed in the conduct of other public utilities. This development while a perfectly logical and natural one destroys much of the freedom of action which characterized these companies at their inception.

9. *Competition with railroads.*—Where the motor truck parallels the railroads' lines it gives them in freight traffic much the same kind of competition that the electric lines have given in passenger traffic. Just as the latter captured a considerable part of short-distance passenger traffic and have absorbed almost entirely the increase in that traffic, so the former is in some instances at least securing a considerable proportion of the short-haul freight traffic.

The distance between Akron, Ohio, and Cleveland is 12.6 miles. In former days thru railroads handled all the traffic between the two cities. Recently they have had to share it with the motor trucks. A record compiled for two or three years ago showed for one week about 8,000 tons of freight passing from Akron to Cleveland, of which as much as 3,000 tons was transported by truck. For the purpose of the comparison it is unimportant whether the hauling was done by trucking companies or by manufacturing concerns using their own trucks.

Competition of the motor truck has become a factor in railway management wherever short hauls are an important feature of traffic. Allusion has already been made to the vogue of the motor truck in the New

England states. Here we have to deal with a densely populated region, with many independent centers of population at no great distance from one another. Pressure of motor truck competition is said to have made serious inroads into the traffic of the shorter lines and to have made their operation unprofitable.

Another phase of truck competition appears in many cases in the lines, known in railway parlance as feeders. These are short lines usually from 25 to 35 miles in length running off from the trunk line into farming or mining regions and are designed to collect traffic for the main line. In farming regions, especially when the freight must be gathered from scattered farms, the motor truck is used more and more to take the product direct to the main line. Time is saved to the shipper by this means and his goods receive prompt attention. Meanwhile the feeder line is deprived of business and languishes. It is said that in many cases railroad executives would be glad to abandon the operation of such lines if the government authorities would permit them to do so.

10. *Checking railway development.*—An important service which the motor truck is capable of rendering is that of furnishing transportation in regions which for one reason or another the railroads have left out of the scope of their operations. Some of the most successful lines for the transport of agricultural products have been established in regions not far from great cities which at best are scantily supplied with

railroad facilities. The motor truck whether operated as a common carrier or privately operated has done much to overcome this handicap. Considering the extent of the railroad net in the United States it is not probable that there are many areas capable of developing a profitable transportation business which have been overlooked by the railroad builders. If such areas exist their invasion by the motor truck would probably effectually check any possible railway development.

However this result is less probable than that the motor truck will give to districts which can not support a railroad the benefits of rapid mechanical transportation.

11. *Motor trucks as railway feeders.*—Discussion of the motor truck in connection with the railway problem very often assumes that the motor truck can always reach the market. This is far from being the case. Very often the market is a distant one and the motor truck can only reach the railway. In this sense it operates as a feeder to the railways and works in strict cooperation with them. It is capable of rendering an auxiliary service which may prove of great value to the railroads in increasing the volume of available freight. Just as in the case mentioned in the preceding paragraph it makes larger areas accessible to the near-by market, so it makes larger areas accessible to railroad transportation facilities and the world's market. If the haulage by horse-drawn wagon renders it unprofitable for a farmer fifteen

miles from the railroad to raise export crops, the motor truck may remedy this situation and thus increase railroad traffic.

12. *Motor truck in railway service.*—The motor truck is an instrument of short distance traffic which can be used by the railways, in certain instances, just as effectively as by private persons. An interesting use of the motor truck is made in Cincinnati to transfer freight from one terminal to another. Formerly a large part of the less-than-carload freight was moved from one terminal to another by trap-car service, and about 75 cars were utilized daily in this work. By reason of delays of all sorts the average time required for the transfer was 62 hours. This work is now done by fourteen motor trucks equipped with 225 removable bodies, with considerable saving of time. Several other railroads are now using motor trucks to relieve congested terminals.

As we have seen in the last chapter the motor truck has already made its appearance on the tracks of the railroads themselves. For shorter distances with a limited traffic it seems to bid fair to solve the question of motive power.

13. *Motor truck prospects.*—In the handling of goods three more or less distinct phases are generally recognized. Beginning with the humblest, there is first the delivery of goods from the retail stores to the customer; this is followed by the trucking of goods of larger bulk between factories and business houses and rail and water terminals; and finally the trans-

portation of goods from one locality to another.

While the first tho a subject of much interest finds no proper place in a book on transportation, the motor truck has tended to break down the distinction between the second and the third. There can be no doubt that it has well established itself in the first and second fields and is making some inroads on the third. Hence it has been necessary to give it consideration in this volume tho time and experience alone can tell what place it will eventually occupy in transportation as here conceived. There are some indications that the types of service which it can perform are now fairly well understood. But time alone will reveal the limits of those services, and establish the extent to which they can be profitably utilized.

REVIEW

What advantages does the motor truck offer for shipping freight?

In what forms of trucking is the motor truck used?

Does the Federal Government exercise any control over motor trucks doing an interstate business? What forms of control have state governments attempted?

How does the motor truck compete against the railroad? How may it be used to cooperate?

Discuss the use of the motor truck in railway service.

CHAPTER XIV

WATER TRANSPORTATION

1. *Advantages of water transportation.*—Where transportation by water is available the one outstanding advantage that it offers is that of cheapness. In comparison with rail transportation water transportation is cheap because so little equipment is needed, the facilities necessary are slight and, most important of all, the right of way—ocean, river or lake—is free to all and is not subject to expense of upkeep. In rail transportation on the other hand the expenses for new construction, maintenance of way and similar expenses form a large percentage of total costs and must be accounted for in the rate or fare in order that the railroad may earn a return upon its investment. The waterway requires no maintenance and the carriers needs are limited to the equipment and to terminals provided with proper storage, lifting and moving facilities. It can operate more cheaply than a rail carrier because a horse power afloat will propel a larger tonnage than ashore. A water route has no grades to level, no bad curves to negotiate, but at times inadequate water depth or other weather conditions may hamper its operation.

2. *Disadvantages of water transportation.*—As

with all other transportation agencies water transportation is best fitted for certain services. For short distances the handling charges, which are greater in water than in rail transportation, make a water rate less economical than a rail rate but as distance increases the water rate becomes cheaper than any other form of transportation for like distances.

In order successfully to operate a water line it is necessary that adequate freight be offered to fill the vessel. In railroad service the size of the train may be adapted to the amount of freight or passengers to be carried but a freight or passenger steamer which travels on schedule must move whether it goes out in water ballast or with a well-filled hold.

In most vessel operation it is necessary to work in cooperation with the railroads. While freight may oftentimes be secured independently, as in the lake service, a much larger amount is turned over to the water carrier by the railroads. Many a shipper, too, finds it convenient to ship over a rail-water route, where it would be impossible to ship all water. One of the drawbacks to a rail-water shipment is the number of handlings to which such freight is subjected, four being the minimum number. Moreover, the cost of freight handling to and from the holds of vessels is almost double that of loading and unloading a freight car. With the wages of freight handlers and stevedores still at a high figure a rail-water haul for a short distance may be higher than an all-rail rate.

3. *Waterways both competitors and aids to rail*

traffic.—It is readily seen that the waterway may compete with a railroad in the transportation of certain kinds of freight and that this competition determines the maximum rate which railroads are able to charge for such traffic. A good example of this influence is seen in the transcontinental rates of the railroads, which are governed largely by what the steamship lines charge on such traffic carried between the Atlantic and Pacific coasts via the Panama Canal. Wherever water transportation exists either actively or potentially it tends to have an influence upon rail rates. In the case of coastwise or intercoastal business its influence is far reaching, in the case of river traffic its influence is largely local. If water competition is to reach its highest point of effectiveness, however, it will be necessary for it to adopt some of the railroad's methods and provide an up-to-date service with modern vessels, well-equipped terminals and a freight soliciting bureau which is active and ready to help the shipper. In many instances water competition offers so little in comparison to rail service that the shipper is forced to patronize the railroad to get his freight moved quickly and with little trouble.

The waterways supplement the work of the railroads. Each in its field has a separate service to perform. This is seen in the traffic on the Great Lakes which consists of such bulky shipments as iron ore, grain and lumber moving eastward and coal and package freight moving westward. This service is performed at low cost and leaves to the railroads the transportation of the more valuable commodities for which higher rates can be charged. Should the railroads attempt to take over for their lines the business of the water lines, a large part of which is seasonal, a great congestion of traffic would result. By thus carrying a large amount of essential commodities of commerce at a low rate the water carrier aids in the development of industries, which in turn means more freight for the railroads.

4. *Classes of water transportation.*—Traffic may move by water in a number of different ways. The first of these is by ocean transportation, which so far as it relates to foreign trade is discussed in the Text on that subject. Ocean transportation is likewise a factor in domestic commerce in the port-to-port service of the coastwise carrier.

A second division of water transportation comprises inland water transportation agencies—river, lake and canal.

Coastwise service is confined to traffic moving by water between the ports of the Atlantic, Gulf and Pacific coasts. The river traffic is tributary to these three coasts. The navigable lake traffic is confined to the Great Lakes and the canal traffic is almost as widespread as river traffic and has been divided into canals operated by the Federal government, state governments and private corporations. From the standpoint of tonnage hauled the government canals are by far the most important.

5. *Coastwise traffic.*—Coastwise tonnage is used

largely in the movement of such bulk products as coal, sand, oil, lumber, lime and other building materials, fruit, phosphate and fertilizer and in the movement of package freight. The tonnage which offers at coastwise ports is carried by barges, by line steamers, operated either independently or by the railroads, by tramp steamers and by a few sailing vessels. The bulk tonnage is large and confined to a few shippers. The package freight is much less in tonnage than bulk freight but is distributed among a far greater number of shippers.

In order that ports may develop they endeavor to establish a large number of connections thru coastwise carriers and thus secure a wide area with which to trade. In this way they can compete with interior cities which have a relatively large land surface contiguous to them. For example, a circle of five hundred miles radius drawn around St. Louis would embrace a much larger land area tributary to it than one of the same size drawn around a seaport like New York. By reaching out thru water transportation a seaport is able to reach a great number of other seaports and by transhipment from water to rail lines, or other forms of land transportation, to enlarge its trading area over that of its competitors.

6. *Railroads and coastwise lines.*—In order that coastwise lines may operate successfully, cooperation with the railroads is essential. A railroad which owns a water line is naturally more desirous of feeding traffic to it than it is to direct traffic to an indepen-

dent line. Moreover all the traffic solicitors of the railroad company are working for the water line. If the water line is independent the railroad is often unwilling to cooperate because in so doing it might short haul itself. If the railroad by giving traffic to a water line did not short haul itself it might still prevent another railroad running to that destination from getting the business and thus earn its hostility.

The development of water lines has enabled some railroads to reach New York which could not have reached that city otherwise. As New York has become the chief financial and commercial center of the United States and the terminus of many transatlantic steamship companies, a railroad with a New York connection would have the best strategic position for securing import and export trade. While the New England railroads have lost their steamship connections with New York other railroads still maintain them. The Southern Pacific Railroad with the Morgan Line plying between New York, Galveston and New Orleans obtains a transcontinental route in this way. The Central of Georgia thru the Savannah line likewise obtains a service to New York. The Southern railroad thru its water lines has similar connections with Baltimore.

7. *Traffic on the Great Lakes.*—Some one has compared the Great Lakes to an inland sea and the figure is an appropriate one, for judged by volume of traffic the business done on the Great Lakes exceeds that done on the Mediterranean and Black Seas combined.

Some idea of the extent of this traffic may be gained from figures on traffic on the Detroit river connecting Lake St. Clair and Lake Erie and on traffic passing thru the locks of the Soo Canal between the lower lakes and Lake Superior ports, as published in the 1920 report of the Chief of Engineers of the United States Army. The commerce of the Detroit River for that year aggregated 80,410,082 short tons valued at $1,135,390,357. All but 5 per cent of this traffic was bulk freight. Commerce passing thru the Soo Canal was slightly less in both amount and volume than that for the Detroit River for the same year—79,282,496 short tons valued at $1,119,774,214. The principal commodities carried were flour, wheat, grain, copper, iron, coal, salt, lumber, oil, stone and general merchandise. In addition to the freight traffic 68,451 passengers were carried thru the Soo Canal in 1920.

One notable fact in the Great Lakes traffic is the available tonnage in each direction. While eastbound shipments exceed westbound, enough freight is found for a large movement each way. The eastbound ore vessel on arriving at destination at a lake port loads up with coal for a cargo westward. Each port along the lakes has tonnage eastward and westward. For example, Duluth-Superior receives coal and ships out iron ore and grain; Buffalo receives iron ore, grain stone and sand and ships coal and miscellaneous freight; Ashtabula gets iron and ships coal.

Apart from data relating to the movement of freight and vessels at certain ports, the chief source of information and indeed the only source of comprehensive figures regarding the lake and other water traffic is found in reports made from time to time by the Bureau of the Census. The latest published refers to the year 1916 and frequent reference must be made to that year, in the absence of later information. The largest and most important shipments in lake traffic are "thru" shipments. The gross earnings from lake traffic in 1916 exceeded 85 million dollars, an increase over those of 1906 of 30 per cent. Of this amount 70 million dollars or 82 per cent was secured from freight, nearly nine million dollars from passenger traffic and the remainder from other sources.

8. *Traffic on rivers.*—The principal river in the United States is the Mississippi which with its tributaries has a larger mileage than any single railway system in the United States. In 1916 approximately 13 per cent of the gross tonnage of all vessels operated in the United States was found on this river and nearly 11 per cent of all freight carried by water in the United States passed over it.

Commerce on the Mississippi is carried on largely by steamboats, the old flat-bottomed stern wheeler constituting about three-fifths of all steam vessels and carrying in 1916 about 63 per cent of the tonnage. Unrigged craft consisting of barges, flat boats, scows and other craft without power are second in importance. Formerly a large amount of bulk traffic was carried in barges which were built for a single trip and then sold for lumber at New Orleans or other lower river ports but this practice has been largely discontinued.

The growth of commerce on the Mississippi has not kept pace with traffic on other rivers, nor has it kept pace with the rail traffic of this section. The railroads carry most of the passengers, mails and high grade freight, leaving to the boats only package freight, farm products and bulk products such as coal and lumber. Reasons for this are not far to seek. River traffic on the Mississippi has been handicapped by shifting channels, absence of return freights, poor terminal facilities at river ports, difficulty of constructing terminals on account of varying river levels, absence of thru water and rail routes, and lack of cooperation on part of shippers. The railroads have been meeting the expanding needs of commerce by providing heavier rails, larger and more powerful locomotives and cars of greater tonnage capacity.

In January, 1918, the Director General of Railroads appointed a committee "to study the possibility of utilizing the inland, canal and coastwise waterways for transportation purposes." The Committee, in April of that year, recommended the utilization of the New York Barge Canal and lower Mississippi River, and for the latter recommended acquisition and operation of a fleet of tugs and barges to cost $8,-200,000. They also recommended that a fleet be developed to operate on the canalized portion of the Black Warrior and Tombigbee Rivers, to provide service between Birmingham coal and iron districts and Mobile and New Orleans, at a total expenditure of $3,000,000. These projects were authorized in a modified form and a Federal Manager of the Mississippi-Warrior River project appointed who was instructed to commandeer all craft capable of moving freight and to build a new fleet.

Twenty steel barges capable of carrying 450 tons each were chartered from the Engineers Department of the Army and cargo houses were erected on them. Other barges were purchased and operations commenced in September, 1918. During the calendar year 1919 the fleet carried a total tonnage of 104,790 and earned a revenue of $400,643 or an average of $3.82 per ton. Of the tonnage carried approximately two-thirds was down-stream. A total of 88 different commodities were carried, the principal ones being sugar, grain, coffee, wheat, rice and merchandise.

The work of the Committee on Inland Waterways has been continued by the War Department. The service between St. Louis and New Orleans has now been in effect since 1919. During 1922 forty steel barges were in operation in both directions between these cities, each barge having a capacity of 2,000 tons or the equivalent of 67 loaded freight cars. On the Warrior River a fleet of self-propelled steel coal barges and a number of wooden barges are in operation carrying coal from Birmingham to Mobile and New Orleans.

While originally starting as a port-to-port service the barge lines on the Mississippi-Warrior River service within six months secured joint rates with the railroads and issued thru bills of lading, thus enabling a shipper to make connections with all river points between St. Louis and New Orleans and with Mississippi, Alabama, Georgia, and Florida points. The barge lines assumes all liability for freight while in its possession and no insurance need be taken on shipments made on its line. Docks and interchange facilities are provided at New Orleans, St. Louis, East St. Louis, Cairo, and Memphis where freight can be transferred to rail carriers, the cost of transfer being included in the joint rate.

The territory tributary to the Mississippi has been divided for shipping purposes into four zones. Shippers in the states of Minnesota, Wisconsin and Iowa and parts of Nebraska, Illinois, Indiana, Michigan and Ohio can ship by rail to East St. Louis where shipments for Mississippi river points may be taken over by the barge line. The remainder of Missouri, Indiana, and Ohio and parts of Arkansas, Tennessee and Kentucky use Memphis as a water shipping point. Territory in between these zones can ship either thru East St. Louis or Cairo. The remainder of Arkansas and parts of Louisiana and Mississippi can ship thru Vicksburg. By means of these joint rail-water routes and joint rates over them it is claimed that shippers in these localities may effect large savings in both time and money.

On the Warrior River branch a weekly service is given between New Orleans, Mobile, interior Alabama points and parts of Florida, Georgia, Mississippi and Tennessee. Transfer points are found at Cordova, the port of Birmingham and at Tuscaloosa, Alabama. Joint rates and thru bills of lading are issued on this line as on the Mississippi route.

The Barge Line now serves each week a total of twenty states embracing a population of 38 millions of people. Terminal facilities, long a drawback to transportation on the Mississippi, are with the cooperation of the Mississippi Valley Association being augmented and enlarged. At St. Louis and Memphis joint rail and water terminals are being constructed. At Cairo, the Illinois Central and the War Department are engaged in building a joint terminal and at New Orleans the existing terminals are being improved.

With deepened channels, up-to-date equipment, adequate terminals and coordination between water and rail facilities the Mississippi River is now well fitted to take part in the expanding needs of the commerce of that region.

9. *Types of vessels used.*—The statistics of tonnage of craft on the Mississippi and its tributaries show that the number of vessels has tended to decline. The decline is due to changes in unrigged craft, no-

tably coal barges formerly operating on the Ohio from Pittsburgh south. Steam vessels including all craft propelled by machinery have increased in numbers but decreased in carrying capacity, the reason being the large number of motor-driven vessels of small tonnage that are being used. A table of vessels and crafts for the years 1916 and 1906 follows:

	1916	1906
Number of vessels	7,239	9,622
Steam and power boats	1,700	1,435
Unrigged	5,539	8,187
Gross tonnage	1,621,495	4,411,967
Steam	119,963	146,227
Unrigged	1,501,532	4,265,740
Value of vessels (dollars)	23,030,503	22,852,142
Gross income (dollars)	17,439,746	17,342,038
Number employed on vessels	14,706	15,016
Wages paid (dollars)	6,380,325	5,692,117
Freight, railway car ferries (tons of 2,000 pounds)	12,332,713	6,905,597
Other freight (tons of 2,000 pounds)	27,836,714	24,721,384

10. *Statistics of tonnage on the Mississippi River.*—In 1916, the last year for which figures have been compiled, over 40 million tons of freight were carried on the Mississippi River and lightered in its harbors. Of the freight handled, a little more than one-fourth (28 per cent) was carried by steam vessels and the remainder was towed on barges or scows. Consid-

ered by commodities, coal constituted almost one-half the total tonnage. Sand, lumber, grain and iron ore in the order given were next in importance. In the table which follows are given for the years 1916 and 1906 the various commodities carried on the Mississippi River and its tributaries, expressed in tons of 2000 pounds:

Traffic on the Mississippi River and its Tributaries, by commodities, 1916 and 1906

Commodity	1916	1906
Coal	13,916,013	11,033,011
Stone, sand, etc.	1,710,857	4,004,259
Lumber	744,873	514,950
Grain	617,946	380,721
Iron ore	470,409	171,779
Other specified products ranging from pig iron and steel rails (255,615 tons) to ice (14,302 tons) in 1916	1,326,130	1,040,955
Miscellaneous merchandise	9,176,355	9,291,015
	27,962,583	26,436,690

11. *Traffic on canals.*—The canal traffic of the United States is small in comparison with the canal traffic of many countries of Europe, and very small indeed in comparison with rail traffic in the United States. Not only is it small but government figures show that it has tended to decrease. The number of

vessels, gross tonnage, number of employes and the freight carried all decreased in the period from 1906 and 1916 as the following table shows. The value of vessels increased 25 per cent despite a decrease in tonnage nearly as great. The table follows:

	Aggregate[1]		
	Census Year	Total	Canals and other inland waters of New York State.
Number of vessels	1916	2,049	978
	1906	2,140	1,648
Gross tonnage	1916	196,426	115,290
	1906	259,491	209,152
Value of vessels (dollars)	1916	5,744,486	2,857,239
	1906	4,586,791	3,294,221
Gross income (dollars)	1916	4,179,481	2,138,557
	1906	3,957,729	2,781,604
Number employed on vessels	1916	3,168	1,490
	1906	3,731	2,472
Wages (dollars)	1916	1,263,885	590,788
	1906	1,361,030	920,260
Number of passengers carried	1916	2,005,036	457,351
	1906	1,877,889	835,052
Freight and harbor work	1916	3,059,479	1,417,744
(tons of 2,000 pounds)	1906	3,944,655	2,712,481
Freight carried	1916	2,542,626	1,120,762
	1906	3,716,765	2,502,891
Harbor work	1916	516,853	296,982
	1906	227,890	209,590

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[1] Exclusive of 134 vessels with a gross tonnage of 9,829 reported as idle in 1916; and 68 vessels with a gross tonnage of 7,368 reported as idle in 1906.

The freight shipped over the canals of the United States in 1916 amounted to a little over 2½ million tons, representing a decrease from the tonnage of the previous decade of 31.6 per cent. The decrease was due to the large falling off of grain shipments and to a lesser extent to the reduction in shipments of lumber and miscellaneous freight. Of the commodities shipped in 1916 coal constituted over 36 per cent of the total tonnage and stone and sand almost as much. These two commodities taken together made up nearly three-fourths of the tonnage hauled by canal. The following table shows the freight shipped by canal in 1916 and 1906, according to the commodities:

Commodity	Quantity (tons of 2000 pounds) 1916	Quantity (tons of 2000 pounds) 1906
Coal	933,961	899,593
Stone, sand, etc.	903,640	924,351
Lumber	166,405	369,576
Grain	80,426	499,340
Ice	70,243	71,029
Other specified products ranging in 1916 from pig iron and steel rails (25,673 tons) to cotton (40 tons)	82,968	167,298
Miscellaneous merchandise	304,983	785,578
	2,542,626	3,716,765

12. *Traffic on the New York Barge canals.*—Of the various canals and canal systems of the United

States none are more important than the New York Barge canals which carry nearly two-thirds of all canal traffic. The Erie canal is the largest and most important of the barge canals, with the Champlain canal second. The work of improving and reconstructing these canals was begun in 1903 and finished in 1918 at a cost, including that of terminals, of $150,000,000. The increased efficiency of the canals is seen from the fact that barges of 2,000 tons burden can now be accommodated on the Erie canal where formerly barges of 240 tons were the largest which could be used.

Of the 1,421,434 tons carried on the barge canals in 1920 products of the ground form the largest group with 594,000 tons. Products of manufacture, agricultural products, forest products and products of the ground show increases over the previous year while products of animals and miscellaneous products show declines. During the decade from 1910 to 1920, inclusive, traffic on the Barge canals decreased from 3,116,000 tons to 1,421,000 tons. The tonnage carried in 1920 on the Barge canals was as follows:

Classification	Tons
Products of the ground	594,206
Products of manufacture	325,426
Products of the forest	248,930
Products of agriculture	226,291
Products of animals	89
Miscellaneous products	26,492
	1,421,434

The tonnage carried in 1920 exceeded that of the previous year by 183,000 tons, or 15 per cent, and was distributed as follows:

Division	Tons	Per cent of total
Erie	891,221	62.7
Champlain	485,598	34.2
Cayuga-Seneca .	36,936	2.6
Oswego	3,959	0.3
Black River	3,720	0.2
	1,421,434	100.0

A fair gain in the traffic of the Erie Division of the Barge canal was made in 1920, the tonnage increasing 49,057 tons, or 5.8 per cent, over that of the previous year. A large increase in traffic in manufactured goods has been developed in contrast with low grade freight which formerly constituted nearly the entire tonnage. At Rochester an export package service has been developed and large amounts of photographic apparatus, optical goods and machinery are being sent by waterway to New York for export. The situation which prevailed during the war period when little west-bound business was carried has been altered. The flow of traffic east and west was well balanced in 1920 due largely to the resumption of imports.

The Canal is used by two classes of carriers, regular lines and private lines. Of the regular lines the Federal government, thru the War Department, operates a fleet of barges between New York and Buffalo.

Proprietary fleets are operated by half a dozen companies and approximately 200 barges, individually owned and operated, engage in carrying freight. The private lines operated by large manufacturing interests are using the Canal to an increasing extent in the transportation of iron and steel for export thru New York. Oil, cement, chemicals, flour, electrical machinery, radiators, and syrup are other commodities which large manufacturing interests along the canal are transporting by their own barges.

Bulk cargoes are especially adapted to canal traffic. A large amount of grain east-bound is being sent each year thru the Canal and this amount will be increased when the grain elevators at Buffalo. Oswego and Gowanus Bay, Brooklyn, are completed.

On the divisions of the Canal other than the Erie, the Cayuga-Seneca division gained nearly 25,000 tons, or 300 per cent, over the previous year due to large shipments of cement and salt; the Champlain Division 121,000 tons, or 33⅓ per cent. On the Oswego and the Black River divisions of the Canal there were decreases in tonnage over the previous year.

13. *St. Lawrence Canal project.*—By a treaty made in 1910 an international joint commission was created for the United States and Canada, composed of three members from each country, for the purpose of representing their respective governments in all matters affecting the boundary waters between the two countries. Congress and the Canadian Parlia-

ment in 1918 instructed the Commission to make surveys and hold hearings to determine the feasibility of opening the Great Lakes to ocean commerce.

One project calls for enlarging the St. Lawrence channel by digging additional canals to allow for passage of vessels around the rapids. Another, and the one most favored by engineers, is to deepen the channel near Ogdensburg, New York by the construction of a dam. This latter scheme would cost about $250,000,000, one-half of which the United States would pay. Return from the money invested would be made in canal tolls and, as a by-product, the development of hydro-electric power.

The advocates of the scheme claim that its chief value lies in giving the products of the Middle West a chance to reach European markets at a low cost and without transhipment. Wheat, for example, could go directly by water from Duluth to Liverpool at a saving in mileage over the present rail-water route of 500 miles. Chicago, Cleveland, Buffalo and other lake ports would make proportional savings in mileage by the use of this all-water route. The friends of the plan insist that bulk freight, like grain, iron and steel, copper, rails and package freight without limit, would find its way to Europe over an all-water route. It is claimed also that the Canal would supplement the work of the railroads and relieve them at the times of seasonal shortage of cars. Grain could be brought to a lake port like Duluth and if sufficient rail accommodations were not to be had it could be sent on by boat at a cheaper rate without loss of time.

The scheme has been indorsed by middle western organizations and some government officials and opposed by some state officials, commercial organizations and other interests in cities along the north Atlantic seaboard and along the Erie Canal. Reasons for opposition to the scheme are that coal and iron constituting as they do about 90 per cent of lake traffic do not require a tidewater outlet; that grain which constitutes the largest part of the remaining 10 per cent will decrease in export owing to increased demand at home; that the port of Montreal is closed by ice for five months of the year; that the widespread use of such a waterway by ocean carriers is not certain; that the State of New York would be forced to pay 30 per cent of the cost while fourteen middle western states would only be required to pay 10 per cent; that the expense entailed, $310,000,000, will prove a heavy burden upon tax-payers, and that the New York State barge canals which have just been completed at heavy expense should be given a trial before additional sums of such magnitude are expended.

14. *Future of water transportation.*—While the large majority of freight shipments in the United States still move by rail it is not unlikely that the railroads have almost reached the saturation point and that shippers will soon have to turn to other forms of transportation. The motor truck has already

made a decided inroad in the short-haul traffic of the railroads and water transportation seems likely to be used to a greater extent than formerly in the carriage of bulk goods and other low-grade commodities which now burden them. In the past the railroads have been able to meet the transportation needs of the country with an adequate, and low-priced service. This is no longer the case. The growth in population coupled with a rapid development of our industries has not been accompanied by a similar development of rail facilities.

Of the various forms of water transportation the coastwise service offers the most promise and is gradually regaining the ascendency it held prior to the War. Coastwise traffic and traffic on the Great Lakes are the most important of all our forms of water transportation.

Except in lake traffic, inland water transportation shows little inclination to develop. This is due largely to the ignorance on the part of the public as to the service inland transportation can perform, to the lack of organization and facilities on the part of vessel lines, to the failure on the part of the railroads to cooperate with independent boat lines and to the lack of coordination between rail and water facilities. The railroads are well organized, efficient, aggressive and endeavor generally speaking to furnish the shipper with an adequate service. They solicit his business. The inland transportation service operated on most of our rivers and canals is far behind the times, little solicitation is made by it for business and, even after business has been secured, inadequate and inefficient methods are used to handle it. In many cases the railroads will not cooperate with independent water lines, and can not be induced to participate in water-rail shipments at inland points.

The future of American transportation lies in the enlargement of water transportation facilities and a fuller cooperation and coordination between water and rail facilities now existing. It is evident that our rivers and canals and coastwise routes can be used to a greater extent than at present for the transportation of bulky freight and low grade package freight over long distances. Local freight between towns situated along waterways is still only in its infancy. In times of seasonal movements of crops the water carrier can successfully supplement the work of the railroad. Until the American people can be made to see the need for such a service, however, its development will be fitful. Unfortunately that need has not yet fully been made apparent.

REVIEW

Compare the advantages and disadvantages of water transportation.

How does a waterway compete against a railroad? How may it be used to cooperate?

Name the different classes of commodities of coastwise commerce and how are they carried?

Describe the recent improvements made in Mississippi River traffic.

Discuss the Great Lakes–St. Lawrence Canal project, giving its advantages and disadvantages.

CHAPTER XV

RAILWAY DEVELOPMENT AND OPERATION

1. *Obstacles to railway development.*—The business prosperity of the country is intimately bound up with the efficiency and prosperity of its transportation systems. Business is not greatly helped by cheap rates unless it can secure adequate service. It is therefore deeply interested in everything which has a bearing upon the adequacy of the railroads to meet the demands made upon them. There can be no healthy development of business if one of its essential organs, the transportation of goods, rests upon an unsound basis.

In a progressive country there must be a constant extension and improvement of the railway facilities, equipment and service. This can only be secured by a steady flow of capital into the railroad business. Where the railroads are private enterprises as in the United States this inflow of capital will be regulated by the returns which can be expected from railway investments. Unless the profits of railroading compare favorably with those of other enterprises capital will seek other investments and the railroads will lack the funds necessary for expansion and improvement of facilities.

This has in fact been the situation which has confronted the railroads of the United States in the past decade. Financially the railroads have been starved and as one railroad official has put it they have been unable to "put on a reasonable amount of 'fat' when they could have done so without any undue burden or hardship."

Thru government rate regulation a large measure of control over income has been withdrawn from the railroads. Other powers granted to the Interstate Commerce Commission have directly or indirectly lessened the control of the railroads over operating expenses and have in a number of instances tended to increase them. In considering in this chapter various aspects of government regulation other than those pertaining to rates, the reader should not only consider their adequacy but should bear in mind also probable effects on railway finances and on railway prosperity generally.

2. *Regulation of labor.*—It is generally recognized as essential that railway transportation should be uninterrupted, and that nothing should be allowed to stand in the way of regular performance. Strikes and labor troubles are always deplorable but in transportation they are calamitous. The underlying public feeling is that, whatever may be the merits or demerits of one side or the other in controversies which may arise between railway managers and their employes, the interest of the public in regular service is always paramount.

This principle has been at the root of all efforts to legislate upon labor relations in the transportation field, beginning with the Erdman Act of 1890, supplemented by the Newlands Act of 1913, and finding its fullest expression in the Transportation Act of 1920. Every conceivable device including compulsory arbitration has at various times been proposed to secure the peaceful settlement of labor grievances without stopping or slowing up the wheels of the railroads. Indeed compulsory arbitration itself was incorporated in the Transportation Act as first drafted, but the pressure of the powerful railway unions and the reluctance to assert the principle of compelling men to work who did not want to do so, forced it out of the law before it was finally adopted.

The Transportation Act in its provisions for the regulation of labor went further than any previous Federal legislation. It called upon the carriers and their employes "to exert every reasonable effort and to adopt every available means to avoid any interruptions to the operations of any carrier growing out of any dispute between the carrier and the employes or subordinate officials thereof." It provides an elaborate machinery for putting this principle into effect.

3. *Railway Labor Board.*—The Act creates a national body called the Railway Labor Board to which it assigns an extensive jurisdiction. It also provides for the creation of local organizations known as boards of adjustment. Under the law the lat-

ter may be established by any carrier or group of carriers and their employes. The adjustment boards were designed to hold hearings, take testimony and attempt to settle disputes, involving grievances, rules and working conditions, arising between a carrier and its employes. These boards are given no power to enforce their decisions nor do they have any jurisdiction over wage rates.

The Railway Labor Board is composed of nine members, three of whom are appointed by the railroad employes, three by the railroads and three by the President, the last group being designed to represent the public. The members are appointed for five years. The Board sits at Chicago and at any other place it may determine. The salaries of the members of the Board are fixed at $10,000 a year.

The Board has power to decide disputes left unsettled by the adjustment boards, to decide disputes occurring where no local boards have been chosen and where either the carriers or their employes have made application for a hearing, or where the Board is of the opinion that the situation is of sufficient importance to warrant an investigation.

A decision of the Board requires the concurrence of five members, one of whom shall be a representative of the public. No power is given to the Board to enforce its decisions. It relies solely upon the force of publicity. The Board can not prevent a strike but it may send copies of its decisions to the parties in dispute, to each adjustment board and to the Commission, and determine on whatever further publicity is necessary.

4. *Operations of the Board.*—The Board is called upon to establish fair and reasonable wages and working conditions. In arriving at its decision it is to consider the following relevant circumstances:

1. The scale of wages paid for similar kinds of work in other industries
2. The relation between wages and cost of living
3. The hazards of the employment
4. The training and skill required
5. The degree of responsibility
6. The character and regularity of the employment
7. Inequalities of increases in wages or of treatment, the result of previous wage orders or adjustments

Two of the early decisions of the Board in wages were notable. On May 1, 1920, it increased wages 22 per cent and on June 2, 1921, it provided for a decrease in wages of about 12 per cent, effective July 1, 1921. At the same time the Board made a new classification of occupations, grouping the positions on steam railroads into 17 major services, the services into 119 groups and the groups into class titles and grades. This classification is to be used as the basis for collecting data for any disputes coming before it. In the absence of any local adjustment boards the Railway Labor Board has been called upon to settle most of the questions which have arisen involving working conditions as well as wages.

The Labor Board has proved unpopular with the railroad officials who claim the right to bargain directly with their own employes on questions involving wages and working conditions. They claim also to be more conversant with labor conditions on their own roads than it is possible for any government agency to become. The railroad strike of the summer of 1922 showed the railroad unions to be equally opposed to the activities of the Board, when as they believed their interests were adversely affected.

While the public interest in the matter can not be denied the situation is a difficult one. Some power on the part of the government to intervene in order to prevent strikes and the tie up of the transportation system is imperative. It is probable that the power will be the more effective the less it is actually used. If the railroads and the railway workers come to rely upon the government to settle all their difficulties, such action will be construed by the roads as interference in the conduct of their business and weaken their sense of responsibility to attain efficient management.

5. *Car service.*—Other powers granted to the Interstate Commerce Commission enable it, if it so desires, to develop a most extensive control over car service. These powers are intended for emergencies rather than for daily use, and do not bring about the domination of railway activities by the Commission which they seem to imply. None the less, even tho unused, the grant of such powers is evidence

of a disposition on the part of the legislator, to consider first the interests of the public, perhaps also to disregard those of the railroads.

As defined by the Transportation Act, car service includes "the use, control, supply, movement, distribution, exchange, interchange, and return of locomotives, cars and other vehicles used in the transportation of property, including special types of equipment, and the supply of trains by any carrier by railroad subject to this Act." Formerly the section applied to cars only, and in times of car shortage the railroads sometimes claimed that the difficulty was a shortage of motive power and not of cars.

In order to meet the complaint formerly made by the small bituminous coal operators that the railroads discriminated against them in favor of the large operators in furnishing cars the carriers are now required not only to make a just distribution of cars but during a period of car shortage to apply a system of ratings to mines "and to count each and every car furnished to or used by any such mine for transportation of coal against the mine." Penalties of $100 for each offense are provided for failure to comply with this provision.

The Commission has power to require the carriers to file with it their rules and regulations on car service and also to include them in their schedules. It can also set the compensation or per diem to be paid a carrier for the use of its cars and locomotives. This has been a subject of violent debate with the railroads on many occasions. Mr. E. J. Rich writing in the Economic Review of September, 1920, says "No subject in intercorporate relations has been more acrimoniously discussed among the railroads than this subject of car rental. The importance of it is readily seen by considering the fact that if the rental is low there is an incentive for a railroad not to provide itself with its own cars but to use those of other companies; whereas if it is high there is a tendency to build cars for the purpose of renting them to other companies."

In times of shortage of equipment or other emergency the Commission is empowered to suspend any car service rules or regulations and make such arrangements as will "best promote the service in the interests of the public and the commerce of the people, upon such terms of compensation as between the carriers as they may agree upon, or in the event of their disagreement, as the Commission may after subsequent hearing, find to be just and reasonable."

The Commission, in such a time, is also empowered to require joint use of terminals and to prescribe priority orders or embargoes on movement of traffic for such time as it may determine. In time of war the President may call upon the Commission to give preference to certain traffic on the grounds that it is "essential to the national defense and security."

If the Commission is of the opinion that a railroad is unable to handle its traffic so as to serve the public properly it may so route and distribute it as to secure that result, upon terms to be arranged between the interested carriers, or failing that, after a hearing, upon such terms as are just and reasonable.

Failure to obey any of the orders relative to car service subjects the carrier to a penalty of from $100 to $500 for each offense and a further penalty of $50 for every day in which the offense is continued.

6. *Construction and abandonment of line.*—The law gives the Interstate Commerce Commission a voice in other major or minor matters of railway management. New lines can not be built or leased nor can old lines be abandoned by any carrier without the sanction of the Commission. The clear intent of the provisions in regard to new lines is to forestall any unnecessary duplication in service, by requiring a conclusive demonstration of the need for new construction. This provision of the law applies to extensions of lines by existing carriers. Whether new railroads proposing new lines would be subject to it is open to question. But it is rather academic than practical, as the United States is fairly well equipped with transportation facilities and no new construction of note is likely to be undertaken except by the interests already in the business.

7. *Securities.*—The arm of the law has extended its fingers into various matters connected with the financial management of railroad operations.

No carrier can issue securities until after investigation and approval by the Commission and the Commission must first be assured that the issue is "for some lawful object within its (the carrier's) corporate purposes, and compatible with public interest, which is necessary or appropriate for or consistent with the proper performance by the carrier of service to the public carrier, and which will not impair its ability to perform that service and is reasonably necessary and appropriate for such purpose." Otherwise the Commission may deny the application.

This provision will remove the dangers of conflicting and hampering state legislation and remove also the tendency at times shown by certain states to "gouge" the railroads. An example of such practice is given by Mr. Rich in the American Economic Review in telling how the state of Illinois at the time of the consolidation of the New York Central system imposed a license fee of $600,000 while other states thru which the system passed charged merely nominal fees. When the Southern Pacific railroad asked approval of the Arizona Legislature for the issuance of $30,000,000 of securities the railroad commission of Arizona attempted to make such approval conditional on the expenditure within the state by the railroad of a certain amount of the proceeds resulting from the sale of such securities. The control of the issue of securities by a national authority should relieve the railroads from any such cross-roads restrictions.

8. *Interlocking directorates.*—The Transportation Act confers upon the Commission jurisdiction over railroad directorates in making it unlawful for any person to hold membership on the board of directors of more than one common carrier unless the Com-

mission authorizes it as not affecting adversely either public or private interest. An endeavor to break up interlocking directorates was made in 1914 when the Commission conducted an investigation of the financial arrangements of the New Haven railroad and this provision and the foregoing one on the issuance of securities are the result of recommendations made by the Commission at that time.

9. *Payment of freight charges.*—If some of the powers of the Commission which have thus far been reviewed have seemed to place one restriction after another upon the activities of the roads, it is not to be forgotten that there are others which indicate a genuine desire to aid railway development in one way or another. Thus there is some solicitude that the railroads should actually and promptly receive what they earn. The Commission may prescribe rules to assure the prompt payment of freight charges. The railroads have sometimes been forced to give to big shippers a longer time in which to settle their freight bills than the smaller shippers and have thus discriminated against the latter. The small shipper must pay on delivery and if the same rule were strictly applied to large shippers no goods could be delivered until all charges had been paid and this would create complicated and burdensome situations. Arrangements are therefore made with large shippers to place them upon an accommodation list and bill them at intervals, usually weekly, for their freight.

10. *Traffic and revenue.*—Tendencies toward co-

operative action on the part of railroads are recognized by the Act of 1920 as inherent in the nature of the business. Instead of trying to restrain cooperation as previous legislation had done the Act adopts the policy of permitting it, provided always that the public interest is served and not disregarded. It seeks to effect this purpose by placing various forms of combination or association under the supervision of the Commission and making them subject to its approval. In the present legislation the power to approve in almost every instance implies the power to order or direct if the Commission deems such action in the public interest.

Beginning with the Interstate Commerce Act of 1887 the government has frowned upon all efforts of the railroads to pool traffic or earnings. Public opinion was strongly averse to all forms of pools and the legislation of the time reflected this opinion. Within recent years, however, the attitude of the public toward pooling has changed and the opinion now prevails in many quarters that it would be advisable to allow railroads to enter into closer financial arrangements with each other for the betterment of their service under the proper government supervision. The pooling provision of the Transportation Act is a step in this direction. This provision authorizes the Commission, after a hearing, to permit the railroads to pool the traffic or earnings of competitive roads "when it will be in the interests of better service to the public, or economy in operation and will not unduly restrain competition." The carriers forming the pool must give their written consent and carry the pool on under rules and regulations fixed by the Commission.

11. *Consolidation.*—As we have already seen there is a strong tendency among the railroads toward consolidation. One effect of this consolidation of interests and management has been to leave some of the roads out in the cold and by reason of their financial weakness to leave them in a somewhat precarious situation. There has been much agitation of ways and means to bring the benefits of consolidation to the weaker roads.

As we have seen in a previous chapter a tentative plan of consolidation of the railroads of the United States has been prepared and published by the Interstate Commerce Commission. It has been given widespread publicity. Hearings are to be held so that the railroads may present their opinions on the proposed consolidation and a plan worked out for adoption. It is unlikely, however, that any plan of consolidation will become effective without a compulsory provision requiring the consolidation of railroad properties within a limited period of years.

12. *Temporary financial aid.*—Financial provisions of the Transportation Act put the railroads in such shape that they might properly serve the public in the period following the termination of Federal control. The Act made provision for loans to railroads within two years after the railroads had been returned to pri-

vate management. In applying for a loan the carrier was required to state the amount of the loan desired, time required, purpose, ability to repay, the character and value of the security offered and the extent to which public convenience and necessity would be served by it. Additional information might be required by the Commission regarding the physical situation, ownership, capitalization, indebtedness, contract obligations, operations and earning capacity of the carrier. If the Commission were then satisfied that the loan should be made it was to make proper representation to the Secretary of the Treasury setting forth its findings of fact, the amount of the loan recommended, time in which it was to be repaid, not exceeding a maximum of five years, the character of the securities offered by the railroad and the terms under which the loan should be made. The Secretary of the Treasury was empowered to make these loans within the given time limit (26 months after the termination of Federal control) up to the maximum amount recommended by the Commission, from a revolving fund of $300,000,000 set aside for this purpose. The loans were to bear interest at 6 per cent, payable semi-annually. The Secretary of the Treasury was to determine the duration of the loan, the security adequate for the loan, the conditions under which it was to be made and the form it should take.

13. *Miscellaneous provisions.*—A number of miscellaneous legislative provisions bear upon railroad development and operation. The Commission since

its inception in 1887 has been authorized to require annual reports from carriers. This provision from time to time has been strengthened and broadened in scope by amendments until now the Commission may require not only very complete financial returns from the railroads, but may in its discretion, collect from the carriers information on traffic movement, rates, fares or charges or contracts entered into regarding them.

The Commission has broad powers over the safety of train operation. Under the Transportation Act the Commission is given authority to require common carriers to instal automatic train stop, train control or other safety devices according to prescribed specifications and requirements. Other laws dealing with railroad construction and operation which the Commission administers are the Safety Appliance Act, Boiler Inspection Act, Hours of Service Act, Transportation of Explosives Act, etc.

14. *Railroad prospects.*—It has been wisely observed that the effect of laws lies not so much in their substance as in the manner in which they are enforced. Tho the Transportation Act appears in many cases to strengthen the hands of the Interstate Commerce Commission, in dealing with the railroads, it reflects also a change of spirit in those dealings. There are many evidences that the public is convinced that the railroads can thrive only under private ownership and operation. The government, while still controlling rates and wages is at least convinced, as shown

by the Transportation Act, that the railroads must be allowed to earn a fair return upon their properties. The Railroad Administration, as rapidly as possible, is settling its accounts with the railroads, reimbursing them in cash where funds are owing the roads and allowing them to fund all debts for betterments due the Railroad Administration. On their part the railroads are endeavoring to economize by reducing wages and forces, curtailing purchase of all but the most necessary equipment, and refraining from new construction. While the general level of rates was advanced from 25 to 40 per cent in August, 1920, individual rates in many instances have been reduced. Taking into consideration the general rate increases made since 1914 the general level of rates was, in 1922, about 100 per cent higher than before the War.

It is to be hoped that the railroads will be left to work out the situation for themselves. They have proved efficient in the past and can be so in the future. With increasing prosperity the gross earnings of the railroads will increase and tho the tendency of rates and fares may be downward the increased volume of business should tend to offset this tendency and restore the railroads to financial prosperity. This in turn should permit of a healthy and normal development of their properties.

REVIEW

What provisions were made in the Transportation Act for the regulation of railroad labor?

Name some of the considerations the Railway Labor Board is to make in arriving at fair and reasonable wages.

What attitude do you think the government should take in arriving at the prevention of railroad strikes?

What does car service include? What powers has the Commission over it?

How does the Commission control the issue of railroad securities? At what evils was this provision of the law aimed?

What provision did the Transportation Act make for railroad cooperation?

How has the government come to the financial aid of the railroads?

CHAPTER XVI

HOW FREIGHT IS SHIPPED

1. *Shipping papers.*—The procedure followed in making shipments of freight whether over rail or water routes has become thoroly standardized, thru the use of certain definite documents with whose general form and contents we should make ourselves familiar. Tho not everywhere uniform variations in these forms are very slight. The most important of these forms is the Bill of Lading, for which the Interstate Commerce Commission as early as 1908 recommended a uniform form. The essential parts of the proposed form have been adopted by practically all the railroads. The vital parts are those which fix the conditions of the contract. Being universally used, these are printed as standard forms in the Consolidated Classification.

The contract between the shipper and the carrier is a private, but not a special contract. The general forms prescribed by the common carrier, assume different forms under different conditions of transportation. These forms can not be modified by private arrangements affecting individual shipments. This is a necessary consequence of the quasi-public service of common carriers. Any departure from established practice would render the companies liable to the charge of discrimination.

2. *Bill of lading.*—The bill of lading serves a double purpose. It is ordinarily prepared by the carrier and must be signed by both the carrier and the shipper. The carrier's signature carries with it a receipt for the goods delivered to it by the shipper, and an agreement to transport them in accordance with the conditions stated in the contract. The shipper's signature in effect confirms the shipping instructions and certifies to the correctness of the receipt. Thus the bill of lading is a receipt and an agreement in one. Formerly the carrier gave a receipt for goods delivered to it and subsequently prepared the bill of lading or contract, a duplication of papers now generally abandoned.

Bills of lading differ according to whether the goods are to be delivered direct to the consignee (straight bill) or whether they are to be delivered only on order of the shipper (order bill). Export bills differ in some important respects from inland bills. Moreover there are certain variations from the usual bill of lading which have their foundation in the character of the goods shipped (grain, live stock, etc.). With slight exceptions the duties of carrier and shipper remain the same, and these can be most conveniently studied in the straight bill of lading.

3. *Straight bill of lading.*—As we have suggested the bill of lading is a receipt. It must therefore contain a full description and identification of the com-

modities shipped. In L. C. L. shipments this means a statement not only of the contents of packages but of their identifying marks. In carload shipments the car may be regarded as the package and its number must be noted. As a receipt it must specify clearly the names of the shipper and of the carrier. But the bill of lading is on the part of the shipper the equivalent of shipping instructions. It must therefore contain the name of the consignee and his location, with mail address so that he can be notified of the arrival, and if there is a choice of routes an indication of the route to be followed. It is also an agreement on the part of the carrier and therefore in the bill of lading he must indicate the charge which is to be made.

Large shippers with well-organized traffic departments make out the bills of lading themselves and secure the freight agent's signature to them. This insures accuracy and avoids subsequent complaints. Whether made out by the shipper or by the carrier bills of lading are always made out in triplicate. Two copies are given to the shipper. One he retains as a record, the other, generally the original, he forwards to the consignee in order that the latter may claim the goods on arrival. The third copy known as the shipping order remains in the carrier's hands and is used by the carrier to route the shipment.

A straight bill of lading is a non-negotiable instrument which entitles the holder named in the bill, the consignee, to receive the goods when all the conditions of the contract have been fulfilled. A form of such a bill of lading is reproduced in Figures 4 and 4 A.

4. *Order bill of lading.*—Like the C. O. D. express shipment the order bill of lading prevents the delivery of the goods shipped until they have been paid for, but goes further in enabling the shipper to secure his money thru a bank as soon as the shipment is made without waiting for actual delivery.

The bill of lading printed on yellow paper with duplicates in blue to distinguish it from other forms is made out so as to call for delivery to the shipper or on his order at the place of destination. The consignee on whose behalf the shipment is made is named on the bill. In order to realize on the shipment the shipper draws a draft upon the consignee and attaches the bill of lading indorsed in blank to the draft. He negotiates this draft at his bank and receives the proceeds of his sale. The bank in turn forwards the draft with bill of lading attached, to its correspondent at the point of destination. The latter presents the draft to the consignee who upon payment of the draft receives the bill of lading and is then in a position to claim the delivery of the goods.

This is a common form of making collections in foreign commerce and is largely used in domestic trade as well.

5. *Other bills of lading.*—Export bills of lading combine in one document both rail and ocean transportation and are generally order bills. Other forms which relate to special conditions in the shipment of grain, live stock and United States government ship-

ments need not detain us. It may be noted, however, that the ordinary bills of lading used in southern territory differ from those used elsewhere in containing certain provisions relating to water transportation.

6. *Contract of carriage.*—However different they may be in details of form, railroad bills of lading are alike in the contract of carriage, the essential points of which are printed on the back of the bill of lading. The details can be studied in the form presented in Figures 4 and 4 A. These clauses fix in the first instance the liability of the carrier, exempting him from responsibility in certain specific cases of loss or injury to the goods, and define the length of time (48 hours after arrival) during which he is responsible as a carrier. They give the carrier liberty in the absence of special agreement to route the shipment as he sees fit, and recite that he is not obligated to make the shipment in any special way or at any special time but merely to give it reasonable dispatch. The contract makes it the duty of the shipper to reimburse the carrier for any cooperage or baling of the goods, necessary for their preservation, fixes the time when goods must be removed and authorizes proper charges for delay in the removal. The clauses provide suitably for the carriage of articles of extraordinary value, and of explosives and for commodities transported for part of the route by water transportation.

7. *Preparing the bill of lading.*—Much vexation can be avoided by having the bill of lading properly prepared. It is a good general rule to type descrip-

tions and destination. Abbreviations are to be avoided, especially in stating destinations. Familiar abbreviations of the names of states sometimes look alike, and it is well to spell out the names of states. Moreover the correct designation of the destination should be given. It may vary from the post office designation. Where there are two or more freight terminals at a given place the exact terminal should be distinctly stated.

It is equally important that descriptions should be certain and definite and thus aid proper classification. It should be remembered that in case of doubt the rate clerk will protect himself by giving the highest rating. While an incorrect rating is a proper subject for a claim, the latter is only slowly collected and should be avoided.

8. *Delivery of goods.*—At destination, goods, in theory, are only delivered on presentation of the bill of lading. Theory and practice must of necessity accord in the case of order bills, but in the case of straight bills practice departs from theory in many cases when the consignee is well known and in regular receipt of shipments. Goods are often delivered in such cases on receipt of the consignee or his known agent.

A stranger to the carrier's official must in many instances be identified on presenting the bill of lading. To avoid this annoyance, the bills of lading are frequently given to transfer or moving companies for securing the delivery of the shipment.

9. *Way-bill.*—We have considered the use of the first and second copy of the bill of lading. Let us now return to the triplicate copy termed the shipping order. Its first use is as a record for the freight agent at point of shipment but before filing it away for reference he makes out the way-bill or shipping instructions. A way-bill is in effect a ticket for the transportation of the goods, and one must be made out for each shipment whether it is a carload, several packages to the same address, or a single package. As freight can not, like the passenger, carry its own tickets, they are given to the conductor. The latter must assure himself that each shipment is accounted for in the way-bill. The complete way-bill or a card way-bill stays with the freight until it is delivered to the receiving agent. Way-bills are, like passenger tickets, simple or composite; they may refer to one line only or to several. Sometimes, however, for a combined route a simple way-bill is issued to the junction point, and the shipment is there rebilled. When the conductor delivers the freight as in the case of L.C.L. freight at transfer points he delivers the way-bill also. In other words he is responsible for freight and way-bills delivered to him until in due course he transfers them to another, either the receiving agent or an intermediate agent in the shipment of the goods.

These way-bills are made out in several copies, one of which goes to the auditor of each railroad or other carrier concerned in the shipment.

10. *Tracers.*—The way-bill and its use does not of

course immediately affect the shipper; it is a matter of internal administration of the railroad. It is, however, of interest to him as showing the nature of the records to which the railroad can make appeal in the case of lost or delayed shipments. In such cases a tracer is sent out by the receiving agent to all junction points, stations, train conductors and agents to locate the shipment. Reports on the results are given to those concerned, the shipper or consignee and the Freight Claim Agent.

In special cases and for carload shipments, particularly of live stock and perishable commodities, a system of passing reports is often established at junction points. These are telegraphic reports of the arrival of cars at these points. The service is sometimes furnished by the carriers, sometimes by chambers of commerce. Such reports are helpful in preventing delays and furnishing a basis for action when they occur and involve losses.

11. *Claims.*—Claims against the railroads may be for excess freight paid out or for damage to or loss of goods during shipment. They are quite numerous and standardized claim blanks are prepared by the railroads for handling them. A description of these blanks and an account of the procedure in filing and pressing claims would carry us too far into the details of railway administration.

12. *Importance of details.*—The man who makes an occasional freight shipment deals with the railroad company as one deals with the government, feeling

that he must put up with whatever dispositions may be made by the carrier. He feels that he has such rights and privileges as the carrier is disposed to grant him. This of course is right in substance but wrong in spirit, since the conduct of railways is not arbitrary but a matter of law and government regulations. The occasional shipper's contact with the carriers is too casual for him to learn the full extent of variation allowed within the limits of the law and established forms. Such knowledge is valuable and when utilized by the expert traffic man may, as will be seen in the following chapter, result in important savings to the shipper.

REVIEW

What is the purpose of a bill of lading?

What must a straight bill of lading contain? Wherein does it differ from an order bill of lading?

Give some of the essentials of contract of carriage as set forth in a bill of lading?

How should a bill of lading be prepared?

What is a way-bill and for what is it used?

What are tracers?

CHAPTER XVII

THE TRAFFIC EXPERT

1. *Traffic man's field of work.*—The previous chapters of this volume must have impressed the reader with the fact that the shipment of goods is not a simple or casual matter. It is to the shipper's interest that the goods shall arrive when they are wanted and it is equally to his interest that the charges for transportation shall be as low as possible under the circumstances. He often has a considerable latitude in choosing the method of shipment, by water or rail, by regular freight, fast freight, railway express or motor express, or by mail. Each of these has its own requirements as to the preparation of the shipment, baling, crating, packing, etc., and these will have some bearing on the rates charged. Each may impose a different liability on the carrier. Each may require a different period of time for the transportation and delivery of the goods. Each charges different rates. Different routes may be available, each offering certain advantages and disadvantages.

To master all these details in the work of shipping is a man's job, and the man who has all this information at his fingers' ends and is able to give prompt and wise counsel or to handle shipments economically and efficiently is thoroly entitled to the designation of a traffic expert. Such mastery of details is not likely to come without actual contact with the problems of shipping. This contact may come thru the work of the railroad freight department or the shipping department of a business. Traffic experts are recruited from these two sources, but it must not be understood that mere contact with the work whether from standpoint of the shipper or that of the carrier will make a man proficient in it unless he has keen interest, a retentive memory, and a veritable thirst for information regarding rates, classifications, rules, regulations and procedure.

2. *Traffic fundamentals—classification and rates.*—The basis of expert traffic knowledge is a thoro understanding of the principles of classification and of rate making as explained in previous chapters, and a detailed knowledge of the application of those principles in actual classifications and rates.

A traffic man must, in the first instance, know all the ins and outs of the classification. He must know where carload rates are available and how to avail himself of the economies of carload shipments as compared with less-than-carload lots. He must be ready with information in regard to the effect upon classifications caused by different methods of packing and crating. He must know that while classifications are fixed for the time being they are not immutable. He will be keen to realize the advantages which may be obtained thru a lower classification of a given commodity and will inform himself in regard to the classifications given to articles of a somewhat similar nature. If need be, he will put himself in a position to gather all the pertinent information in case he, or those whom he represents, conclude that it might be possible to secure from the Classification Committee a more favorable rating upon the article in question. Or the contention may be that the high classification given a commodity makes it impossible to compete in a given district and he must be ready with the data supporting this view. In the case of less-than-carload shipments, he may be able to secure an "exception to the classification" which will give him a lower rate on the article to be shipped. If the commodity is usually shipped in carload lots he may find it possible to secure for it a commodity rating. Only with a very comprehensive and minute knowledge of the details of transportation can the traffic expert make his services effective in these cases.

Coordinate with the information in regard to classifications would be an equally detailed knowledge of rates. The traffic man must be informed in regard to a wide variety of rates, by different types of carriers, by rail, by water transportation agencies operating on ocean, river, lake and canal, by express companies, post offices, trucking and cartage companies. In his selection of the agency to be employed he will be governed not only by the cost, but by the nature of the service, taking into due consideration such matters as the quickness of rail service compared with the slower and much cheaper service via water in some cases.

The traffic man should be in a position to help business both in its purchasing and sales departments, the former in securing economies in the delivery of goods purchased in widely distant points, and the latter in determining the scope of territories in which advertising and selling activities may profitably be carried on. For a large business with a number of branch plants or warehouses, this information will be of importance in determining the location of these branches or warehouses in order that the goods shipped from them may be handled at the lowest cost. Again, his knowledge of the difference between carload and less-than-carload rates will be helpful in determing whether it may be desirable to use warehouses at various points as distributing centers or whether the nature of the business in hand will render it profitable to employ freight forwarding companies. One of the functions of these companies is to combine less-than-carload shipments from a number of concerns into carloads and then reship them from a central point to their destination. This secures to each shipper the benefit of lower rates.

3. *Routing and delivery.*—The traffic man can secure economies for his employer in the careful routing of freight as well as in securing proper classifications and rates. The Interstate Commerce Act gives the

shipper the right to choose the route over which his shipments may move whenever there is a choice between two or more thru routes.

On many shipments a wide choice of routes is possible. The shipper may send them all water, lake or rail, or, as in trunk-line territory, thru any one of a number of carriers. The so-called differential routes are not direct for they involve transhipment, as when they combine a rail and water route. If speed is not essential, such routes are profitable for the shipper. But where speed is necessary, as in the case of perishable goods like fruit, or highly valuable goods, it is desirable to choose the shortest and quickest route.

A merchant or manufacturer who ships in carload lots obtains not only a cheaper rate but he can also as a rule get his shipments thru to destination in less time than is required for shipments in less-than-carload lots. It may therefore be advisable for him to ship more than the consignee really requires in order to avail himself of these advantages.

In the case of smaller shipments, there are other considerations which require his attention. He must weigh the relative merits of parcel post shipment and express shipment. When it is essential for a package to reach its destination in the shortest possible time, the traffic manager must not only know the routing but also the agency which is best for the purpose. It may be, for example, that the express company makes its collection at four o'clock in the afternoon, and will make no other collection until the same hour on the following day. On the other hand, the post office may accept packages until 6 o'clock in the evening. On matters such as these the traffic man must be informed. He must also know thoroly the practice of railroads with regard to expediting the shipments of specified classes of freight. He must be able to avail himself when desirable of fast freight or preference freight. His experience will give him a detailed knowledge of the time usually taken by shipments between specified points, which he should record for comparison with the experience of others and with the various other aids which may be available for this purpose. A sample of such aids is given in the chart of the Lackawanna Railroad reproduced on page 296, showing thru merchandise service to points west of Scranton.

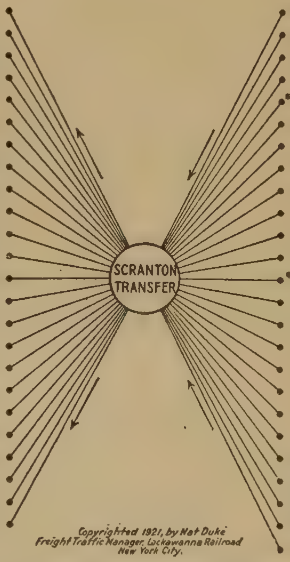
Time is not, of course, the only element in the choice of routes altho it is a very important one. Service also must be considered. Roads which have an unenviable reputation for creating freight claims and for comparative slowness in settling them are to be avoided. Frequently a favorable terminal delivery for the consignee makes one route preferable to another. Where rates carry such privileges as reconsignment, as milling-in-transit, fabrication-in-transit or storage-in-transit, the quality of such facilities on the route will be taken into consideration.

4. *Claims.*—An important and often vexatious matter connected with railroad transportation is the preparation and presentation of freight claims. This

LACKAWANNA RAILROAD

THROUGH MERCHANDISE SERVICE
FROM ALL PHILADELPHIA & READING RAILWAY STATIONS
IN CONNECTION WITH THE CENTRAL RAILROAD OF NEW JERSEY
TO PRINCIPAL DISTRIBUTING CENTERS ENUMERATED BELOW
LOADED INTO THROUGH CARS AND DISPATCHED FROM SCRANTON TRANSFER WITHOUT DELAY

TO	ROUTE	SCHEDULE
St. Paul,	Lacka.-N.Y.C. & St. L. & C.B. & Q.	*7th Morning*
Memphis,	Lacka.-N.Y.C. & St. L.-Big 4-L. & N.	*6th Morning*
Nashville	" " " "	*5th Morning*
Louisville	" " " "	*4th Morning*
Chicago	Lacka.-Grand Trunk	*4th Morning*
Chicago	Lacka.-N.Y.C. & St. L.	*4th Morning*
Chicago	Lacka.-Wabash	*4th Morning*
St. Louis	" "	*4th Morning*
Indianapolis	Lacka.-N.Y.C. & St. L.-B. & O.-C. L. & W.	*4th Morning*
Cincinnati	Lacka.-N.Y.C. & St. L.-Big 4	*4th Morning*
Cleveland	Lacka.-N.Y.C. & St. L.	*3rd Morning*
Fostoria	" "	*3rd Morning*
Detroit	Lacka.-Wabash	*3rd Morning*
Detroit	Lacka.-M.C.	*3rd Morning*
Detroit	Lacka.-P.M.	*3rd Morning*
Detroit	Lacka.-G.T.	*3rd Morning*
Ithaca	Lackawanna	*2nd Afternoon*
Oswego	"	*2nd Afternoon*
Buffalo	"	*2nd Morning*
Elmira	"	*2nd Morning*
Cortland	"	*2nd Morning*
Utica	"	*2nd Morning*
Syracuse	"	*2nd Morning*
*Binghamton	"	*2nd Morning*



Copyrighted 1921, by Nat Duke
Freight Traffic Manager, Lackawanna Railroad
New York City.

FROM	
Second & Berks Sts.	Philadelphia, Pa.
Broad Street	
Chestnut Street	
Catharine Street	
*Willow & Noble Sts.	
Second & Lehigh Ave.	
22nd & Allegheny Ave.	
23rd & Arch Streets	
Girard Avenue	
Erie Avenue	
Port Richmond	
Germantown, Pa.	
*Wayne Jct., Pa.	
Camden, N.J.	
Trenton, N.J.	
Norristown, Pa.	
Reading, Pa.-Eighth Street	
" "-Spruce Street	
Lancaster, Pa.	
Coatesville, Pa.	
Lebanon, Pa.	
Pottstown, Pa.	
Harrisburg, Pa.	
Wilmington, Del.	
All other P. & R. Stations	

ROUTE VIA LACKAWANNA RAILROAD

Corresponding service given shipments loaded to the platforms of connecting roads destined to points beyond those named above.

Passing Reports in possession of LACKAWANNA Railroad Agents enable them to give complete and immediate information to shippers and consignees.

NOTE:

In cases where stations have not sufficient tonnage to load car to SCRANTON TRANSFER add one day to above schedule.

*Daily through cars loaded to Binghamton from Wayne Jct. and Willow and Noble Sts., Philadelphia.

Figure 5.

is a matter on which the traffic expert can be of the greatest assistance. A claim properly filed and accompanied by supporting documents naturally receives much more consideration than one improperly made out or presented just before the expiration of the time limit. The traffic man will be alert to discover over-charges arising from incorrect rates or mistakes in calculation. Of course, the traffic expert will aim to keep the claims arising out of his transactions down to the minimum. However, when they must be presented, he must use patience and diplomacy. He will understand that one of the serious evils in regard to such claims is the delay in their settlement. He will, therefore, not only be careful to present them with all the necessary accompanying documents so as to render their examination by the railroad company as easy as possible, but he will also after allowing reasonable time keep after the claims which are in the possession of the company. He will know from the nature of the shipment, the number of transfer points and the like, something of the length of time which may reasonably be required for the collection of all the information in the case by the railroad authorities and will adjust his action accordingly. But this reasonable time having elapsed, he will be courteously persistent in endeavoring to secure a satisfaction of the claim which has been made.

5. *Systematizing information.*—It is obvious that in a matter of so much complexity and variety of detail, a reliance on memory would be highly treacher-

ous. The traffic expert will, therefore, of necessity surround himself with a large mass of information in printed or in manuscript form.

The success with which he performs his duties will depend in large measure upon his ability to systematize and organize this information so as to have it readily available when needed. The body of his material will consist of classifications, tariffs and other printed matter of the railroads bearing upon the shipment of goods in all its phases and particulars. This will be his primary reference material. But in order to make it available he will be likely to employ devices of his own. In any given case, his principal activities will probably be confined to a comparatively limited territory. In such cases it may be desirable and profitable to reclassify on cards, by localities and by the character of the goods shipped, the information of which he stands in daily need.

6. *Utilizing expert knowledge.*—There are several ways in which the business world uses the services of the traffic expert. Many large concerns making and receiving constant shipments of goods employ him as traffic manager. A second field in which the traffic expert finds a market for his services is in acting as traffic adviser for commercial organizations. Then, he may utilize his special knowledge to establish himself in business as a freight forwarder.

In each of these three distinct positions the traffic expert requires much the same information and ablity, but something must be said about each.

7. *Industrial traffic manager.*—The traffic expert, who assumes charge of the transportation problems of a company which employs him as traffic manager, must in a large degree be an expert in that company's business as well as in transportation. His field of activity may be comparatively narrow but it must be intensely cultivated. He may acquire his knowledge of transportation thru experience in the shipping department of his company or he may be recruited from the freight service of the railroads, in which case he may be assumed to know transportation, and must acquire as rapidly as possible a grasp of the special needs of the company which employs him. Generally speaking the traffic expert who began as a shipping man is more likely to be employed as a traffic manager, while those who began in the railroad service are more frequently found among those employed as traffic advisers and those who have established themselves as freight forwarders.

By the nature of his employment the traffic manager may be said to specialize on certain definite kinds of freight, and he is likely also to specialize on a more or less well-defined territory. His duties can be more precisely explained than those of the traffic adviser, and may therefore properly be considered in some detail.

It will be assumed, as is generally the case where such an office exists, that the traffic manager is charged with supervision over all transportation problems of his concern. He will therefore be interested in both incoming and outgoing shipments.

8. *Incoming shipments.*—The interest of the company receiving raw materials or goods is that they should be delivered conveniently, in good condition, and at the lowest possible cost. Especially when material is received from a number of small shippers it is necessary that full and detailed shipping instructions be prepared. These will concern every aspect of the shipment, its time, its packing, and when necessary, its route and its destination. In large cities there are generally a number of terminals and unless goods are properly marked they may arrive at a point which is very inconvenient for the consignee, causing him delays and perhaps unnecessary trucking charges.

Incoming goods must be carefully checked to see that they accord with bills of lading and the latter should be examined in detail to see that all transportation charges are correctly given. Freight agents, particularly at smaller points, lack the expert knowledge and training of the traffic manager and thru ignorance or negligence may assess higher charges than the shipment requires. Over-charges are a frequent occasion for claims against the railroad.

The physical equipment of the company for receiving and shipping goods is another matter in which the traffic manager can often effect important economies of operation.

9. *Outbound shipments.*—Naturally the outbound

shipments which originate at the company's place of business can receive more minute attention. There are a host of questions which arise in checking, packing, marking and billing the shipments as well as their delivery to the carrier.

The first consideration is that the proper goods should be shipped. Provision should be made at each stage for a proper check on this point and a definite routine established fixing the responsibility of each person engaged in it.

10. *Packing.*—It is of equal importance that the packing be adequate for the protection of the goods and that it should conform to the requirements of the carrier. It has already been pointed out that railway classifications and consequently charges often depend upon the nature of the packing.

Good packing insures the arrival of the merchandise in good order and avoids vexatious claims on the part of the consignee. Packing methods have of recent years received a great deal of notice, and especially the work done by the Forest Products Laboratory of the United States Department of Agriculture at Madison, Wisconsin, has attracted widespread attention. Thru their investigations of the resistance of different sorts of boxes to all kinds of strain they are laying the foundation of a science of box-making. It can not fail to be of great importance to the business world.

The traffic manager will of course make his own study of the requirements for the particular classes of goods which his company ships and can by so doing effect considerable savings in packing costs, transportation charges and incidental claims.

11. *Marking and billing.*—The goods may be properly selected and securely packed but they will not reach their destination unless correctly marked. The carriers have rules and regulations prescribing how this should be done, and these should be rigidly adhered to. A fruitful cause of error in freight and other shipments is the use of old containers which show old marks that are not properly erased or obliterated.

Attention has already been called to the care needed in the preparation of the bill of lading. It is obvious that there should be an exact correspondence between the marks on the bill and those on the packages which are shipped.

The traffic manager should have all the available information on these points at his command and exercise a very careful supervision over his subordinates. In this connection standard rules are often helpful. The traffic manager can draw them up himself or take advantage of those formulated by the railways and other agencies. There is, for example, a circular of the Local Freight Agents Association of New York City which gives comprehensive instructions in this regard.

12. *Trucking.*—Goods received or shipped in less-than-carload lots must in most cases be hauled between the freight yards and the company's place of

business. This auxiliary transportation work is usually placed under the charge of the traffic manager. The questions he has to consider are whether the company shall have its trucking done for it, or do the trucking itself, and in the latter case whether motor trucks or horse-drawn vehicles shall be employed.

13. *Auditing.*—Finally it is usually the duty of the traffic manager to check all bills for transportation. He must see that all charges whether for transportation, switching, demurrage, drayage, express or other service are justified, and his approval must be given before they are paid.

14. *The traffic adviser.*—In the large cities of the United States a prominent feature of the work of commercial associations is the attention given to traffic questions. This work is entrusted to a traffic expert who is placed in charge of a traffic department. Some idea of the wide range of the duties performed by a traffic adviser and his staff may be gained from a consideration of the work of the traffic bureau of the Merchants Association of New York. This bureau, on behalf of the Merchants Association where public interest is involved, conducts negotiations with carriers on rate adjustments, rules and regulations and appears before the Interstate Commerce Commission, the State Public Service Commission and various legislative committees on proposed legislation on transportation. The Bureau also handles matters of general interest to shippers, such as rate adjustments, freight classification, rules and regulations dealing

with the receipt, transportation, delivery and storing of freight, car service and fares and service pertaining to passenger traffic.

The Bureau in addition furnishes an advisory service to members on such questions as the interpretation of the Interstate Commerce Act and the rulings and orders of the Commission, interpretation of the Shipping Act, bill of lading, rates, rules and regulations of carriers, and gives advice regarding the adjustment of claims. In 1921 the Bureau was called upon to answer over 1,600 questions pertaining to transportation. These questions are of such diverse nature as the safe transportation of domestic freight —thefts, claims and carrier's liability; quick transportation—delivery to carrier, transportation by carrier and delivery by carrier; cheap transportation—rates and charges, general and specific, terminal charges and services; bills of lading; export freight—delivery, rates and charges, delay; import freight—delivery claims, and rates and charges; express—claims, embargoes, rates, pick-up and delivery and motor-truck service.

Thru the columns of its house organ, "Greater New York," the Bureau keeps it members informed on current transportation matters and problems in which shippers would be interested, such as changes in rate structure, rules and regulations, and orders and opinions issued by the Interstate Commerce Commission.

15. *Freight forwarders.*—While the large indus-

trial organization is able to devote one department to shipping and place it in charge of an industrial traffic manager there are thousands of small business establishments scattered all over the United States that cannot afford such an expenditure. The small shipper to an increasing extent is making use of the freight forwarder.

The freight forwarder receives and forwards goods, bearing the expense of transportation for which he is compensated by the owners. He has no interest in the property transported. He makes a specialty of assembling less-than-carload freight at some central point, reforwards it in carload lots to its destination where he has provided for its distribution.

The freight forwarder is concerned with both domestic and foreign shipments tho the latter do not concern us here.

16. *Service of the forwarder.*—As the railroad is not permitted to act as an agent of the shipper or the consignee of freight and is required to deliver freight to one consignee only there arose a need for some one who would perform this service. This is one of the functions performed by the freight forwarder. His chief function, however, lies in taking a small shipment from a consignor and combining it with a number of others falling in the same classification into a carload lot, thus securing to the shipper an expedited freight service at a cost somewhere between the carload and less-than-carload rate.

In making a shipment thru a freight forwarder the shipper packs, crates and marks the shipment, consigning it to the warehouse of the freight forwarder. Here it is assembled in a bay where other consignments for the same destination are awaiting shipment. The forwarder gives each piece of freight a destination number, a lot number, and numbers each piece in consecutive order before placing it in the car. He also takes the weight of each piece in order to determine whether he has the car loaded at least to its minimum capacity and as much beyond that as skilful packing can secure. He then makes out the bill of lading and routes the car to his agent at destination. When the car reaches destination the consignee is notified and he or one of his representatives presents a receipt, makes settlement for the goods and takes charge of their removal.

While the principal service of the freight forwarder is in securing a quick service for the shipper he also saves him a great deal of worriment in connection with shipping. In case a shipment is delayed the freight forwarder confers with the railroad company and has the car traced. When it is located he notifies the consignee and gives him the probable date of arrival. The shipper is also saved the bother of looking up rates, making out shipping documents and searching for the best routes over which to route his shipment. Furthermore, if for any reason the consignee is unable to remove his goods within 48 hours the forwarder stores them in his warehouse at a much lower rate than the railroad will store them. By shipping in carload lots the freight forwarder is able by skilful car loading to secure for his patrons a greater degree of protection for their goods than if they were shipped L. C. L. and left to the railroad freight handler to load.

Another service which the freight forwarder is able to perform is in distribution. The manufacturer is unable to secure the services of the railroad in distributing freight to a number of consignees but by consigning his freight to the freight forwarder the latter, while acting as consignee, can also serve as the manufacturer's representative and in this capacity can deliver the goods to any number of persons that the manufacturer designates.

. . . .

Conclusion.—In rapid review this volume has presented to the reader the fundamental relations of business and transportation; it has shown him the carriers' charge for their services thru a system of classifications and rates; it has described the special services rendered by the railroads; it has shown how in the fixing of rates they are held in check by the regulatory power of the Interstate Commerce Commission, and within limited fields by the competition of other forms of transportation. It has further brought to the reader's attention that the financial prosperity of the railways is linked indissolubly with the general welfare of business and has sketched the situation in which the railways find themselves today. Finally it has shown how the shipper uses the railway and how transportation has given rise to a useful specialist, the traffic expert.

One does not need, however, to be a traffic expert to recognize the supreme importance of the transportation agencies in the business of a country such as the United States. It lies upon the surface and it has been the purpose of the present Text to place as clearly as possible before the reader an explanation of the various ways in which transportation touches upon business activities.

REVIEW

How does a traffic man apply his expert knowledge of freight classifications and rates?

How can he secure economies in routing?

Discuss the preparation and presentation of freight claims.

In what three fields may the traffic man be of service?

Enumerate the principal duties of the industrial traffic manager.

What is a traffic adviser and what services does he perform in a large organization?

Describe the work of a freight forwarder and the services he performs.

Note: Numerous questions of business practice and procedure are discussed in detail in the Modern Business Reports. The list will show those which are especially related to this volume. Among them may be mentioned

9 The Industrial Traffic Manager
54 The Motor Truck in Highway Traffic

INDEX

Acworth, W. M., 49
Agency, Joint,
  Publications, 122
Atlantic Slope,
  River commerce on, 34
Auditing,
  Traffic manager and, 303

Baggage
  Definition of, 194; Liability of railroad, 194; Excess, 195; Storage on, 195
Bills of Lading,
  Provisions of, 282; Differences in, 282; Other forms of, 284; Preparation of, 285; Presentation of, 286
Bills of Lading, Export, 284
Bills of Lading, Order,
  Negotiation of, 284; How made out, 284; Collection of, 284
Bills of Lading, Straight,
  Form of, 282; Contents of, 282
Billing Books,
  Use of, 128
Boards of Adjustment, 266
Bureau of Census,
  Lake and river traffic, 247
Bureau of Valuation,
  Work of, 214
Business Man,
  Use of railways by, 18

Canadian Freight Association,
  Rules for carloads, 97; Rules for less-than-carloads, 97
Carload and Less-Than-Carload Ratings, 94-96
Canal Traffic,
  Statistics of, 254; Decrease in, 254; Commodities carried, 256; Importance of coal in, 256
Canals,
  Former importance of, 36; Revival of interest in, 36
Car Rental, 271
Car Service, 269
  Defined by Transportation Act, 270
Carload Lots, 294
Carriers, by Water,
  Filing schedules, 216
Cincinnati Terminals,
  Use of motor trucks in, 239
Claims,
  Reducing expense of, 173; Classes of, 174; Filing of, 174; How handled, 176; Preparation and presentation of, 295
Class Rate,
  How to find, 84
Classification,
  Elements in, 83; Need of, 83; Development of, 85; Exceptions to, 85; Ratings under, 87; Scope and arrangement of, 88; Differences in, 88; Principles of, 92; Influences upon, 94; Exceptions to, 101; And local tariffs, 115
Coastwise Lines,
  Cooperate with railroads, 245
Coastwise Ports,
  Traffic of, 245
Coastwise Traffic, 244
Commerce, Water Borne,
  Classes of commodities, 33
Commission's Orders,
  Neglect to obey, 211
Committee on Inland Waterways,
  Superseded by War Department, 250
Commodity, Value of in Rate Making,
  Interstate Commerce Commission on, 56; Importance of, 57
Commodity Rate,
  How to find, 85; vs. Class Rate, 108
Combination Rates, 105
Combinations,
  Legislation hostile to, 73
Competition,
  Among goods, 8; Geographical, 9; Among shippers, 10; Phases of, 63; Effects of unrestricted, 63; Aspects of, 65; Of routes, 65; Of parallel lines, 66; Of carriers for exports or imports, 66; Of ports,

67; Water, 68; Law and, 77; Prevented at terminals, 81; Short Haul, 218; Interurban against rail, 222; Motor truck and rail, 236
Complaints, Formal,
  Procedure in, 209
Complaints, Informal,
  How made, 208; What they must contain, 208; Does not preclude right to file formal, 209
Concurrences, 117
Consolidated Classification Committee,
  Work of, 92
Consolidated Freight Classification, 84
Consolidation,
  Results of, 75; Law on, 80
Consolidation of Railroads,
  Tentative plan of Commission, 276
Contract of Carriage,
  Provisions of, 285
Cost of Service,
  Adjusted to railway income, 44; Railroad executive's view, 45; Traffic manager's view, 45; Shipper's view, 46; Influence on transportation rates, 47; Influence of, 50; Carloads and less-than-carloads, 51

Delivery, 162, 286
Demurrage, 167
  Purpose of, 168; Actual placement 168; Stoppage in transit, 169; Constructive placement, 169; Notification of arrival, 169; Charges on, 170; When inapplicable, 170; Reciprocal, 171
Detail,
  Importance of, 288
Differential Routes, 294
Director General of Railroads, 249
Distance, as Factor in Rate Making, 51

Electric Railroads,
  Passenger traffic on, 39; Freight traffic on, 39; In competition with steam, 40; Competition with motor truck, 41; Extension of lines, 219; Competition with steam railroads, 219; In interurban service, 220; Freight service of, 222; Mail and express service of, 223
Erdman Act, 266
Erie Canal,
  See Canal Traffic
Excursion Traffic, 188
Exports,
  Rates on, 6
Express Service,
  Origin and extent of, 138

Fabrication-in-Transit, 160
Farmers' Cooperative Company,
  Private trucking service of, 233
Ferry Car, 162
Fink, Albert, 52, 72
Forest Products Laboratory,
  Work of, 301
Freight,
  How moved, 130
Freight Associations, 73
Freight Charges,
  Payment of, 274
Freight, Fast, 130, 133, 134
Freight Forwarders,
  Work of, 304; Patronized by small shippers, 305; Service of, 305
Freight Rates,
  Effect of national distribution, 5; Factor in jobbing trade, 5; Low on imports, 6; Lower for export than domestic, 6; Pressure for low rates, 6; Resultant of many forces, 7; Relation to geographical balance, 9; C. L. and L. C. L., 10
Freight Tarriffs,
  Local, 104; Joint, 104
Freight Receipts, 183
Freight Roads, 185
Freight Traffic,
  Commodities making up, 23; Increase in tonnage, 182

Gentlemen's Agreements, 74
Goods, Handling of,
  Phases in, 239
Great Lakes,
  Traffic on, 246; Eastbound and westbound, 247; Commodities carried in, 247

Highway Traffic, 38
Highways,
  Land, 15; Development of, 36; Federal Act, 37; Bond issues for, 38; Lincoln, 38; Dixie, 38; Department of Agriculture tests, 38; Automobile traffic on, 38; Place of in transportation, 226

Import and Export Rates, 105
Imports,
  Rates on, 6
Import Rates,
  Tariff Commission on, 106
Inbound Shipments, 300
Independent Water Lines,
  Failure of railroads to cooperate with, 262
Industrial Traffic Manager,
  See Traffic Manager
Inland Water Transportation, 244, 262
Interlocking Directorates, 273
Interstate Commerce Act,
  See Transportation Act
Interstate Commerce Commission,
  When established, 14; Plan of grouping railroads, 29; Stability of rates by, 44; Individual costs, 47; Rule of rate making, 51; Short hauling, decision on, 151; Power over fares, 191; Jurisdiction of, 200; Regulation of rates by 201; Power over joint rates, 202; Power over interstate rates, 202; How grievances are redressed, 203; Power to suspend long- and short-haul clause, 204; Determines question of fact, 206; Investigations on own motion, 207; May suspend schedules pending hearing, 207; Informal complaints to, 207; Sets time and place for hearing, 209; How decisions are made binding, 211; Powers over publishing rates, 212; Access to railroad records, 213; Authority over railway accounts and records, 213; Physical valuation of railroads, 214; Water carriers file schedules with, 216; No regulation over motor trucks, 235; Powers over car service, 269; Powers of over car shortage, 270; Joint use of terminals, 271; Penalties for violating car service provisions, 272; Building new lines, 272; Abandonment of lines, 272; Regulation of securities, 272; Prescribes rules for payment of freight charges, 274; Annual reports from carriers, 277; Train operation, 278
Interurban Lines,
  Development of, 220
Joint Tariffs,
  Carriers' file concurrences, 213

Labor,
  Regulation of, 265; Transportation Act applied to, 266
Lake Traffic, 244
Lighterage,
  Free at port of New York, 163; Not absorbed on local freight, 164
Loans to Railroads, 276
Local Tariffs,
  Classifications governing, 115
Losses,
  Causes for, 175

Marking and Billing, 302
Merchants Association of New York, 303
Mississippi River,
  Commerce on, 35, 248; Proportion of gross tonnage on, 248; Type of vessels on, 248; Shipping zones adjacent to, 251; Meets needs of commerce, 252; Table of vessels on, 252; Statistics of tonnage on, 253
Mississippi-Warrior River Project, 249
Mixing Privilege,
  Rules on, 98; Former practice in West and South, 101; Attempt to limit in Official Territory, 101; Interstate Commerce Commission on, 101; Supreme Court Upholds Commission, 101
Motor Transportation,
  Forms of, 231
Motor Truck,
  Analogy with water transportation, 227; Use of highways by, 227; Compared with freight and express, 228; Advantages of, 228; State supervision of, 235; As common carrier, 235; Competition with railroads, 236; Use of in feeder service, 237; Develops inaccessible regions, 237; As railway feeder, 238; Use of in railway service, 239; Prospects of, 239
Motor Truck Express,
  Competition of companies, 234; Operates on schedule, 234

New York,
  Commercial importance of, 246
New York Barge Canal,

Traffic on, 256; Commodities carried, 257; Erie Division, 258; Tonnage by divisions, 258; Classes of carriers on, 258
Newlands Act, 266

Ocean Transportation, 244
Off-Line Freight Offices, 172
Outbound Shipments, 300

Pacific Coast,
Commerce on rivers, 35
Packing, 301
Panama Canal, 32, 68, 243
Panics,
Effect on passenger traffic, 182; Effect on freight traffic, 182
Parcel Post,
Origin of, 142; Zones under, 142; Development of, 143; Rates, 143; Comparison with express, 144; Future of, 146
Passenger Business,
Relative volume of, 180
Passenger Fares,
Variations in, 184; Similarity to freight rates, 188; Impossible to measure all factors in, 188; What must be included in, 189; Effect of distribution of wealth on, 190; Volume of traffic, influence on, 190
Passenger Mileage, 180
Passenger Receipts, 183
Passenger Revenue,
Per passenger, per mile, 184
Passenger Roads, 185
Passenger Service,
Compare with freight, 178; Classes of, 186; Contrasted with Europe, 187
Passenger Traffic,
Minor element in business operation, 11; Relation to freight service, 11
Passengers,
Increase in number of, 182
Passing Reports, 288
Physical Valuation,
Effect on rates, 58; Commissioner Prouty on, 59; Basis for rates, 214
Pooling,
Early agreements in, 71; New England railroads and, 79; Made legal, 79; Attitude of public on, 275
Pools, Railway, 70
Objections to, 71; Enlargement of, 72; Declared illegal, 73; Public opinion opposed to, 73
Ports,
Connections of, 245
Private Cars,
Use of, 134-136
Private Sidings, 161
Pullman Company,
Contract with railroads, 196
Pullman Service, 195

Railroad Administration,
Accounts with railroads, 279
Railroad Costs,
Operation, 47; Fixed elements in, 48; Traffic expenses, 48; Maintenance of equipment, 48; Conducting transportation, 49; Acworth on, 49; Joint costs, 50
Railroad Development,
Obstacles to, 264
Railroad Development and Operation,
Powers of commission, 277
Railroad Fares,
Actual, 192; Conditions modifying, 192
Railroad Labor Board,
Created by Transportation Act, 266; Members, how chosen, 267; Number of members, 267; Salaries of, 267; Powers of, 267; Decisions of, 267; Wage decision of, 268; Occupational classifications, 268; Circumstances attending decisions, 268; Unpopular with railroad officials, 268
Railroad Lines,
Construction or abandonment of, 272
Railroad Ownership, 27
Railroad Prospects, 278
Railroad Rates,
Government regulation of, 12; Government, arbitrator of, 13; Shippers' interest in, 13; Public interest in, 13; Kinds of, 104; Commodity, 106; Local combined with thru, 114; Joint, as legal rates, 118; Aids in finding, 128; Modification of, 149; Milling-in-Transit, 158; Publicity of, 211
Railroad Systems,
Table of, 28
Railroad Transportation,
Differs from other business, 42; Extent of facilities, 43; Affected by business cycle, 182

Railroads,
Competitors of, 16; Expansion and operation of, 16; Financial situation of, 17; Increase of government regulation, 17; In New England, 20; In Middle Atlantic States, 20; West of Alleghanies, 20; In Southern states, 21; West of Mississippi, 21; West of Missouri, 21; On Pacific coast, 21; Miles of track, 22; Recent development of, 24; Growth in mileage of, 24; Physical valuation of, 54; Remuneration for mail and express, 145; Combat competition of electric lines, 221; Electrification of, 225; Capital for, 264
Rate Making,
Social considerations, 60
Rates, Express,
Commission given authority over, 139; Application of, 140; Class rates, divisions of, 141; Commodity rates under, 141
Reconsignment, 155
In Practice, 157
Refrigerator Car,
See Private car
River Traffic, 248
Routes, Choice of,
Elements in, 294
Routing,
When shipper may route, 149; When Railroad routes, 149; Over cheapest route, 152; According to instructions, 153; Absence of instructions, 155

St. Lawrence Canal Project, 259
Schedules,
Printing of, 212; Posting of, 212; Filing of, 212; What they shall contain, 212
Securities,
Insurance of, 272; State legislation on, 273
Service, Value of,
Albert Fink defines, 52; Results of theory, 53; Judge Cooley on, 53; Interstate Commerce Commission on, 53
Sherman Anti-Trust Act, 27
Shipments,
Choice of routes of, 294
Shipments and Deliveries, 161
Shipper,
Interest in terminal facilities, 11; Meeting needs of, 12; May specify car lengths, 91; Entitled to lowest rates, 150; Entitled to cheapest route, 152
Shippers,
Competition among, 10
Shipping Orders, 287
Shipping Papers,
Procedure standardized, 281
Short Haul Problem, 223
Short Haul Traffic,
Motor truck in, 227; Rail and Motor rates, 228
Short Hauling,
Right of carriers to avoid, 151
Shreveport Decision, 203
Small Shipments,
Shipping of, 294
Small Shipper, 136,
Express service and, 137
Standard Railway Fares,
Basis of charges, 190; Provisions limiting, 191
Southern Classification,
Exceptions to in Louisiana and North and South Carolina, 102
State Classifications,
Where used, 102; Application to localities, 102
State Commissions,
Powers of, 14; Results obtained by, 15; Jurisdiction of, 200
State Regulation,
Preceded Federal, 14
Statistics and Accounts,
Commission prescribes form of, 213
Store-Door Delivery,
In England and Canada, 166; Feasibility of, 166; Charges for, 167
Switching,
Charges for, 164; Interline, 165; Lowery tariff, 166

Tariff Making,
Interstate Commerce Commission prescribes rules for, 108
Tariffs, Agency, 120
How to read, 123-127
Tariffs, Joint, 116,
Illustration of, 118; Methods of stating, 119; Contents of, 123
Tariffs,
Local, 109; Method of presenting rates, 110-114
Tariffs, Railroad,
Form of, 108; Contents of, 109
Terminal Advantages, 11

Thru Bill of Lading,
  Prescribed by Interstate Commerce Commission, 216
Thru Routes,
  Choice of, by shipper, 294
Tonnage,
  Classes of railroad, 23; By districts, 23
Tracers, 287
Track Storage, 172
Traffic,
  Coastwise and Lake, 33; River and Canal, 34
Traffic Adviser
  Work of, 303
Traffic Agreements,
  Filed with Commission, 212
Traffic Associations, 74
Traffic Experts,
  How recruited, 291; Services to business world, 298
Traffic Fundamentals,
  Classification and rates, 291
Traffic Manager,
  Field of work of, 290; Knowledge of classification, 291; Familiarity with rates, 292; Routing and delivery of freight, 293; As aid to business man, 293; Knowledge of claims, 294; Collection of information by, 297; Inbound shipments and, 300; Study of packing requirements, 301; Information on marking and billing, 302; Supervision over trucking, 303
Traffic and Revenue, 274
Train Mileage,
  Passenger, 181; Freight, 181
Trans-Missouri Freight Association, 75
Transportation,
  National development of, 1; Influence on business, 2; Relation to profits, 2; Effect on production, 4; Relation to marketing, 5; Time element in, 12; Future of, 263
Transportation Act,
  Fair return for property under, 58; Legalizes pooling, 79; On consolidation of railroad properties, 80; Joint use of terminals, 81; Standards established by 109; Labor grievances under, 266; Permits cooperation of railroads, 275; Pooling provision, 275; Financial provisions of, 276; Train operation, 278
Trap-Car, 161
Trucking, 302

Warrior River,
  Service on, 252
Water Traffic,
  Coastwise and Inland, 16
Water Transportation,
  In domestic trade, 32; Carriage must file schedules, 216; Advantages of, 241; Disadvantages of, 241; Compared with rail, 241; Classes of, 244; Future of, 261
Waterways,
  As competitors against and aid to rail lines, 242
Way-Bill, 287
What the Traffic Will Bear,
  Applied to business, 55; Criticism of, 56
Wisconsin Commission,
  Decision on rate making, 50; Statement on car loading, 95

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